



PROVIDING VALUE FIRST

TES Eloy

NEC of Battaglia Road & Frontier Street

Traffic Impact Analysis

Eloy, Arizona

October 2025

First Submittal: September 2024

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EXECUTIVE SUMMARY

TES Eloy is a proposed mixed-use development on the northeast side of Battaglia Road and Frontier Street in Eloy, Arizona. The development consists of industrial, medical office, commercial, and residential land uses spread across 354 gross acres (or approximately 332 net acres). The project tentatively plans to develop 1,794,670 square feet of light industrial, 278,780 square feet of medical office, 304,920 square feet of commercial, 300 multi-family dwelling units as part of a mixed-use development, 285 multi-family dwelling units as part of a general low-rise development, and 185 single-family dwelling units.

TRIP GENERATION

- At full buildout, the development is anticipated to generate a net total of 28,134 daily trips (entering and exiting) with internal reduction. A net total of 1,489 AM peak hour trips and 2,429 PM peak hour trips are projected.

SAFETY ANALYSIS

- During the five-year analysis period (2019-2023), there were a total of 46 crashes. The intersection with the most crashes was Battaglia Road and Frontier Street (alternately named Casa Grande Highway) with 22 crashes. The most common collision manner was angle (25 crashes), followed by rear end (10 crashes).
- There were four serious injury crashes, three (3) at the intersection of Battaglia Road and Casa Grande Highway and one (1) at Battaglia Road and 11 Mile Corner Road. All serious injury crashes were angle crash type.

SITE ACCESS

- The project is anticipated to be accessed by a total of nine new driveways – seven full access driveways and two right-in/right-out driveways. Six driveways will be constructed by opening year to serve the industrial and medical parcels (Driveways A, B, C, D, E, and H), and three additional driveways will be constructed by final buildout to serve the residential parcels (Driveways F, G, and I). Driveways A, B, D, E, and H are expected to provide cross access to serve multiple land uses.

LEVEL OF SERVICE ANALYSIS

- Under existing conditions, all movements at the study intersections are projected to operate at sufficient LOS.
- All movements at the study intersections are projected to operate at adequate LOS in the 2025 background and total conditions.
- Under 2030 total conditions, the eastbound left-/thru/right-turn movement at Frontier Street/Battaglia Road is expected to operate at LOS E in the PM peak hour. All other movements are expected to operate at LOS D or better in the 2030 background and total conditions.
- Under 2035 background and/or total conditions, several movements are expected to break down at Tumbleweed Road/Frontier Street, Frontier Street/Battaglia Road, 11 Mile Corner Road/Battaglia Road, and Driveways B, C, and E.
- With mitigation, most movements are projected to operate at LOS D or better. The southbound left-turn movement at Driveways B and eastbound left-turn movement at Driveway E are projected to operate at LOS E with 36.0 and 40.5 seconds of delay, respectively.

RECOMMENDATIONS

The recommended improvements to be installed by final buildout of the TES Eloy developments are listed below and depicted in **Figure 1**.

Tumbleweed Road and Frontier Street

- Maintain the existing 200 feet of storage for the eastbound left-turn lane.
- Construct a dedicated westbound right-turn lane with 100 feet of storage
- Construct dedicated southbound left- and right-turn lanes with 150 feet of storage each.
- Re-evaluate the need for a traffic signal warrant analysis as the site plan becomes more refined and monitor traffic volumes as development progresses in the area. It is recommended to install a traffic signal at Tumbleweed Road/Frontier Street to alleviate the delays.

Frontier Street and Battaglia Road

- Lengthen the southbound left-turn lane to provide 325 feet of storage.
- Construct a westbound right-turn lane with 200 feet of storage.
- Re-evaluate the need for a traffic signal warrant analysis as the site plan becomes more refined and monitor traffic volumes as development progresses in the area. It is recommended to install a traffic signal at Frontier Street/Battaglia Road to alleviate the delays. Due to the shared turning and through lanes on the eastbound and westbound approaches, it is advised to operate the traffic signal with split phasing on the eastbound and westbound approaches.

11 Mile Corner Road and Battaglia Road

- Construct dedicated left- and right-turn lanes on the southbound approach with 175 feet and 100 feet of storage, respectively.
- Construct a dedicated eastbound left-turn lane with 225 feet of storage.
- While not along project frontage, there is sufficient width on the westbound approach to stripe a dedicated left-turn lane, allowing the eastbound and westbound left-turn movements to align. It is advised to stripe this westbound left-turn lane with at least 100 feet of storage.
- Re-evaluate the need for a traffic signal warrant analysis as the site plan becomes more refined and monitor traffic volumes as development progresses in the area. It is recommended to install a traffic signal at 11 Mile Corner Road/Battaglia Road to alleviate the delays. Due to the shared turning and through lanes on the northbound approach, it is advised to operate the traffic signal with split phasing on the northbound and southbound approaches.

11 Mile Corner Road and Houser Road

- Maintain existing lane configurations and traffic control.

Tumbleweed Road and Houser Road

- Maintain existing lane configurations and traffic control.

Driveway A and Tumbleweed Road

- Install a northbound right-turn lane with 175 feet of storage.
- Install a southbound left-turn lane with 100 feet of storage.
- Provide a STOP sign on the westbound exiting approach.
- Provide sufficient width for exiting traffic to separate themselves into left- and right-turn movements.

- Driveway A appears to be at least 500 feet south of a bridge crossing an irrigation canal; this is preliminarily anticipated to be sufficient distance for the tapering associated with the southbound left-turn lane without impacts to the bridge.

Driveway B and Frontier Street

- Provide a second eastbound and westbound through lane separated by a central raised median.
- Install a westbound right-turn lane with 100 feet of storage.
- Install an eastbound left-turn lane in the raised median with 100 feet of storage.
- Provide a STOP sign on the southbound exiting approach.
- Provide sufficient width for exiting traffic to separate themselves into left- and right-turn movements.

Driveway C and Frontier Street

- Provide a second eastbound and westbound through lane separated by a central raised median.
- Install a westbound right-turn lane with 100 feet of storage.
- Install an eastbound left-turn lane in the raised median with 175 feet of storage.
- Provide a STOP sign on the southbound exiting approach.
- Provide sufficient width for exiting traffic to separate themselves into left- and right-turn movements.
- Provide a staging area in the central raised median for southbound left-turn traffic to complete the maneuver in two stages.

Driveway D and Frontier Street

- Provide a second eastbound and westbound through lane separated by a central raised median.
- Install a westbound right-turn lane with 100 feet of storage.
- Provide a STOP sign on the southbound exiting approach.
- Provide a right-turn lane on the southbound approach for exiting traffic.

Driveways E, F, G, H, and I and 11 Mile Corner Road

- Install a southbound right-turn lane with 100 feet of storage at all driveways except for Driveway H, which will need 125 feet of storage.
- Install a northbound left-turn lane with 100 feet of storage at all driveways except for Driveway E, which is anticipated to need 275 feet of storage. Driveway I will not need a northbound left-turn lane, as it is anticipated to be restricted to right-in/right-out access due to its proximity to an existing utility service road.
- Provide a STOP sign on the eastbound exiting approach.
- Provide sufficient width for eastbound exiting traffic to separate themselves into left- and right-turn movements at all driveways except for Driveway I, which will only allow for right-turns.

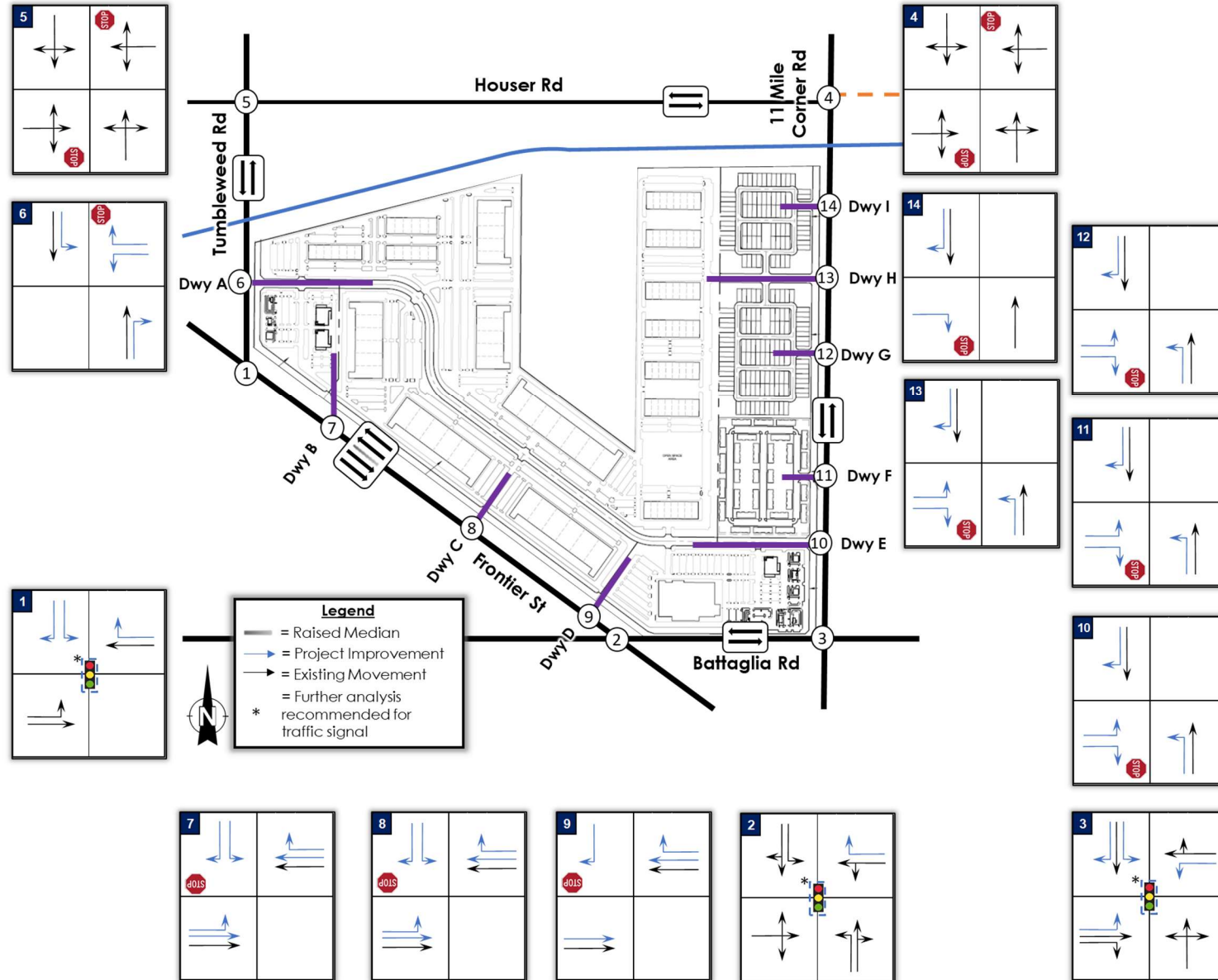


Figure 1: 2035 Recommended Lane Configuration and Traffic Control

INTRODUCTION

TES Eloy is a proposed development located on existing undeveloped land on the northeast side of Battaglia Road and Frontier Street in Eloy, Arizona. The development consists of industrial, commercial, and residential land use across 354 gross acres. This study is a revised version of a previous study sealed on September 10, 2024 and has been revised per comments from City of Eloy staff. A comment resolution form is provided in **Appendix A**.

STUDY OBJECTIVES

The objectives of the study include the following:

- Document existing conditions and perform an existing level of service analysis.
- Perform a safety analysis by studying the past five years crashes within the study limits.
- Estimate generated trips for the development and distribute them to the surrounding street system.
- Add the new trips from the proposed development to the background traffic.
- Determine future levels of service with and without the proposed project.
- Recommend roadway improvements to provide for a safe and efficient transportation system and to mitigate significant impacts of the proposed development.

SCOPE OF STUDY

The Traffic Impact Analysis has been prepared in accordance with the *Pinal County Traffic Impact Assessment Guidelines & Procedures (January 2007)*. Per the Pinal County guidelines, the analysis years for a Category IIc include the opening year (assumed to be 2025), five years after opening (2030), and ten years after opening (2035). The study area for a Category IIc study includes all site access points, signalized intersections, and major unsignalized street intersections within three miles of the project site.

STUDY AREA

The study area includes the following intersections:

1. Tumbleweed Road & Frontier Street
2. Frontier Street & Battaglia Road
3. Battaglia Road & 11 Mile Corner Road
4. 11 Mile Corner Road & Houser Road
5. Houser Road & Tumbleweed Road

ANALYSIS TIME PERIODS AND HORIZON YEARS

The weekday AM and PM peak hour periods were analyzed. The future traffic analyses were conducted for the 2025 Opening Year, the 2030 Horizon Year, and for the 2035 Horizon Year, per Pinal County TIA Guidelines. This study features all phases of the development which is assumed to be fully built by the horizon year 2035.

Figure 2 provides the vicinity map and **Figure 3** includes an aerial image of the project study area.



Figure 2: Vicinity Map

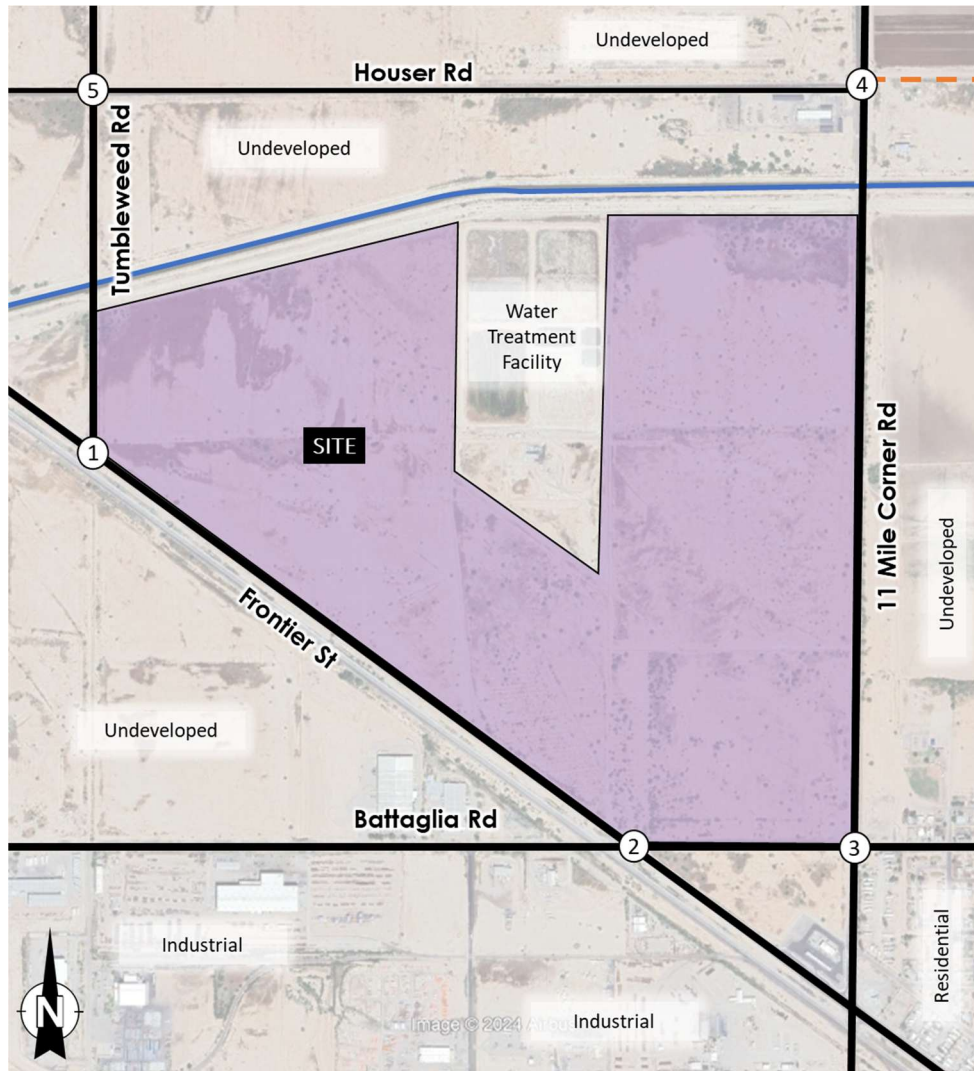


Figure 3: Project Site Aerial Image

EXISTING CONDITIONS

SURROUNDING AREA

The proposed development will be located near the northeast corner of Battaglia Road and Frontier Street. This project is proposed on currently undeveloped land. The lot is surrounded by adjacent undeveloped land, as well as industrial developments to the south and residential communities to the southeast.

PINAL COUNTY REGIONALLY SIGNIFICANT ROUTES (RSR)

Requirements for RSR access management and design are included in the *2008 Regionally Significant Routes for Safety & Mobility (RSRSM) Final Report* and the *Pinal County Access Management Manual, February 2017*. Battaglia Road, Houser Road, and 11 Mile Corner are identified as Regionally Significant Routes in Pinal County's map for *Regionally Significant Routes for Safety & Mobility (RSRSM), 2020 Update*. The 2008 RSRSM Access Management Manual states that "RSR Principal Arterials are major roadways that emphasize a high level of traffic mobility and a low level of access to land; generally, roadways of regional importance, intended to serve moderate to high volumes of traffic traveling relatively long distances and at higher speeds." Additional requirements include 75-foot of half-street right-of-way dedicated on plat for regionally significant roadways.

DESCRIPTION OF EXISTING TRANSPORTATION SYSTEM

BATTAGLIA ROAD

Battaglia Road is an east-west collector roadway classified as a Regionally Significant Route (RSR). The two-lane roadway has a posted speed limit of 35 mph. In the project limits Battaglia Road has paved shoulders and overhead utilities along the south side of the roadway. There are no existing bicycle or pedestrian facilities on Battaglia Road. The roadway provides access to Frontier Street (Casa Grande Highway) on the south side of the site, and crosses Interstate 10 (I-10) approximately 1.35 miles west of the development site, although a traffic interchange is not provided at the crossing.

FRONTIER STREET

Frontier Street, alternately named Casa Grande Highway, is an arterial roadway that has a northwest-southeast orientation. Within the project limits Frontier Street is a two-lane undivided roadway with dirt shoulders. Further southeast of the project site, the roadway offers two lanes in each direction separated by a raised median. A speed limit of 45 mph is posted on Frontier Street along the project frontage.

11 MILE CORNER ROAD

11 Mile Corner Road is a north-south roadway classified as a Regionally Significant Route (RSR) with plans to become an arterial road in the future. The roadway features one lane in each direction of travel. Roadway improvements such as curb, gutter, sidewalks, lighting, or bike lanes are not present on 11 Mile Corner Road. Overhead utilities are present on both the east and west sides of the roadway. The posted speed limit on 11 Mile Corner Road is 35 mph along project frontage.

HOUSER ROAD

Houser Road is an east-west roadway located north of the proposed development. The roadway is classified as a Regionally Significant Route (RSR). Houser Road features one lane in each direction of travel and has a posted speed limit of 45 mph. Curb, gutter, sidewalks, lighting, and bike lanes are not available on either side of the roadway. Overhead utilities are present on the south side of Houser Road. Houser Road connects to a traffic interchange with I-10 approximately two miles west of the project site.

TUMBLEWEED ROAD

Tumbleweed Road is a two-lane arterial roadway with a north-south orientation within the project vicinity. Roadway improvements such as curb, gutter, sidewalks, lighting, or bike lanes are not present along either side of the roadway. Overhead utilities are available on the west side of the roadway. The posted speed limit on Tumbleweed Road is 45 mph.

INTERSECTION OF TUMBLEWEED ROAD AND FRONTIER STREET

Tumbleweed Road and Frontier Street is a three-legged intersection that operates under minor street STOP control. The southbound approach on Tumbleweed Road features one lane that allows left and right-turning movements. The eastbound approach is served by a left-turn lane and a through lane. The westbound approach features a shared through/right-turn lane. A STOP sign exists for the southbound approach on Tumbleweed Road.

INTERSECTION OF BATTAGLIA ROAD AND FRONTIER STREET

Battaglia Road and Frontier Street is a four-legged intersection that operates under two-way STOP control. The eastbound and westbound approaches on Battaglia Road feature a STOP sign while the northbound and southbound approaches on Frontier Street are free-flowing. The northbound and southbound approaches include a left-turn lane and shared through/right-turn lane. The eastbound and westbound approaches are served by one lane that serves left-turning, through, and right-turning movements.

INTERSECTION OF BATTAGLIA ROAD AND 11 MILE CORNER ROAD

The intersection of Battaglia Road and 11 Mile Corner Road is a four-legged intersection operating under all-way STOP control. The northbound, southbound, and westbound approaches feature a single lane that allows for all movements. The eastbound approach is served by a shared left-turn/through lane and a right-turn lane.

INTERSECTION OF 11 MILE CORNER ROAD AND HOUSER ROAD

11 Mile Corner Road and Houser Road is a four-legged intersection that operates under two-way STOP control. The eastbound and westbound approaches on Houser Road features a STOP sign while the northbound and southbound approaches on 11 Mile Corner Road are free-flowing. All four approaches features one lane that allows for left-turning and right-turning movements. The east and west legs are offset from one another by approximately 75 feet, and the east leg is currently unpaved.

INTERSECTION OF HOUSER ROAD AND TUMBLEWEED ROAD

The intersection of Houser Road and Tumbleweed Road is a four-legged intersection that operates under minor street STOP control. The eastbound and westbound approaches on Houser Road feature a STOP sign while the northbound and southbound approaches on Tumbleweed Road allow for free-flowing traffic. All approaches feature one lane that allows for left-turning, through, and right-turning movements.

The existing roadway geometry and intersection traffic control are depicted in **Figure 4**.

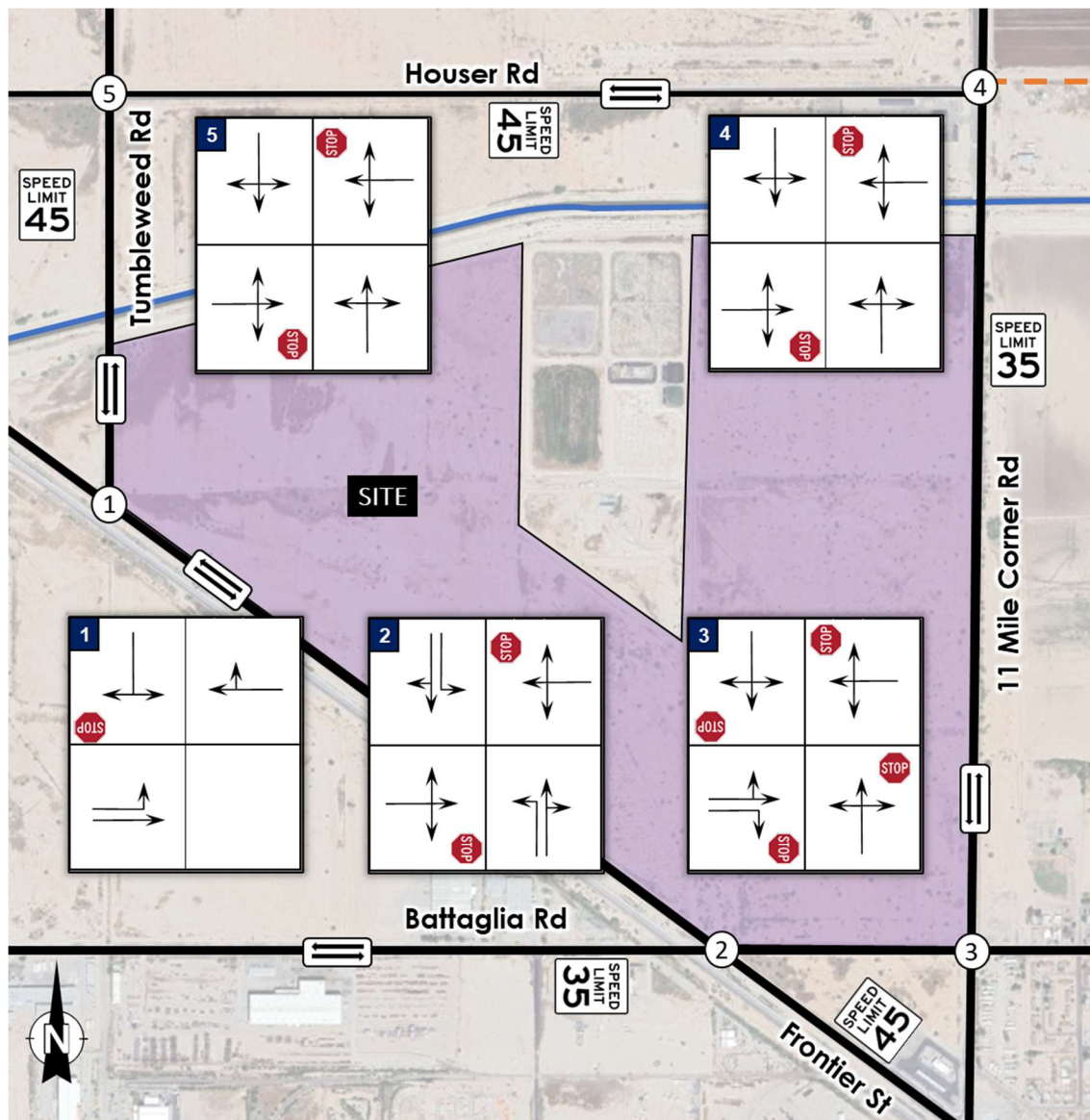


Figure 4: Existing Lane Configurations and Traffic Control

SAFETY ANALYSIS

Five years of crash data (2019-2023) were obtained from the ADOT crash database for each study intersection. Crashes within 150 feet from the center of an intersection were considered in this analysis. All crashes are summarized by year and injury severity in **Table 1** and by collision manner in **Table 2**.

During the five-year analysis period (2019-2023), there were a total of 46 crashes at the studied intersections. The intersection with the most crashes was Battaglia Road and Frontier Street (alternately named Casa Grande Highway) with 22 crashes. The most common collision manner was angle (25 crashes), followed by rear end (10 crashes). No bicyclist or pedestrian-involved crashes were reported. There were four serious injury crashes, three (3) at the intersection of Battaglia Road and Casa Grande Highway and one (1) at Battaglia Road and 11 Mile Corner Road. All serious injury crashes were a result of an angle crash.

Table 1: All Crashes by Injury Severity

1. Tumbleweed Rd & Casa Grande Hwy						
YEAR	No Injury	Possible Injury	Minor Injury	Serious Injury	Fatal	Total
2019	1					1
2020						
2021						
2022	2	1				3
2023						
Total						4
2. Battaglia Rd & Casa Grande Hwy						
YEAR	No Injury	Possible Injury	Minor Injury	Serious Injury	Fatal	Total
2019	2	2	1			5
2020	1			1		2
2021	4	2	1			7
2022	2	2		2		6
2023	2					2
Total	11	6	2	1		22
3. Battaglia Rd & 11 Mile Corner						
YEAR	No Injury	Possible Injury	Minor Injury	Serious Injury	Fatal	Total
2019	1	1				2
2020	2					2
2021	2					2
2022	1		1			2
2023	4	2	3	1		10
Total	10	3	4	1		18
4. Houser Rd & 11 Mile Corner						
YEAR	No Injury	Possible Injury	Minor Injury	Serious Injury	Fatal	Total
2022	1					1
Total						1
5. Tumbleweed Rd & Houser Rd						
YEAR	No Injury	Possible Injury	Minor Injury	Serious Injury	Fatal	Total
2023			1			1
Total						1
Overall Total Crashes:						46

Table 2: All Crashes by Collision Manner

1. Tumbleweed Rd & Casa Grande Hwy								
YEAR	Angle	Left-Turn	Rear End	Sideswipe	Pedestrian	Bicycle	Other	Total
2019	1							1
2020								
2021								
2022			1	1			1	3
2023								
Total	1		1	1			1	4
2. Battaglia Rd & Casa Grande Hwy								
YEAR	Angle	Left-Turn	Rear End	Sideswipe	Pedestrian	Bicycle	Other	Total
2019	2	2	1					5
2020	1		1					2
2021	3		4					7
2022	2		2				2	6
2023	1		1					2
Total	9	2	9				2	22
3. Battaglia Rd & 11 Mile Corner								
YEAR	Angle	Left-Turn	Rear End	Sideswipe	Pedestrian	Bicycle	Other	Total
2019	1	1						2
2020	2							2
2021	2							2
2022	2							2
2023	7	1					2	10
Total	14	2					2	18
4. Houser Rd & 11 Mile Corner								
YEAR	Angle	Left-Turn	Rear End	Sideswipe	Pedestrian	Bicycle	Other	Total
2022							1	1
Total							1	1
5. Tumbleweed Rd & Houser Rd								
YEAR	Angle	Left-Turn	Rear End	Sideswipe	Pedestrian	Bicycle	Other	Total
2023	1							1
Total	1							1
Overall Total Crashes:								46

EXISTING TRAFFIC VOLUMES

TRAFFIC COUNTS

Traffic volumes were collected at the existing study intersections on Wednesday, August 28, 2024, while school was in session. Traffic volumes are provided in **Appendix B**. 13-hour turning movement counts were provided in 15-minute intervals from 6:00 AM to 7:00 PM. From the data, peak hours were identified as 7:15-8:15 PM and 4:00-5:00 PM. The considered 2024 existing volumes are shown in **Figure 5**.

It should be noted that a utility driveway is present north of the site on both 11 Mile Corner Road and on Tumbleweed Road. The utility driveways serve the existing water treatment plant nearby, and are expected to have very low, intermittent traffic volumes. Due to this, turning movement counts were not collected at the driveways and they are not included in the existing analysis.

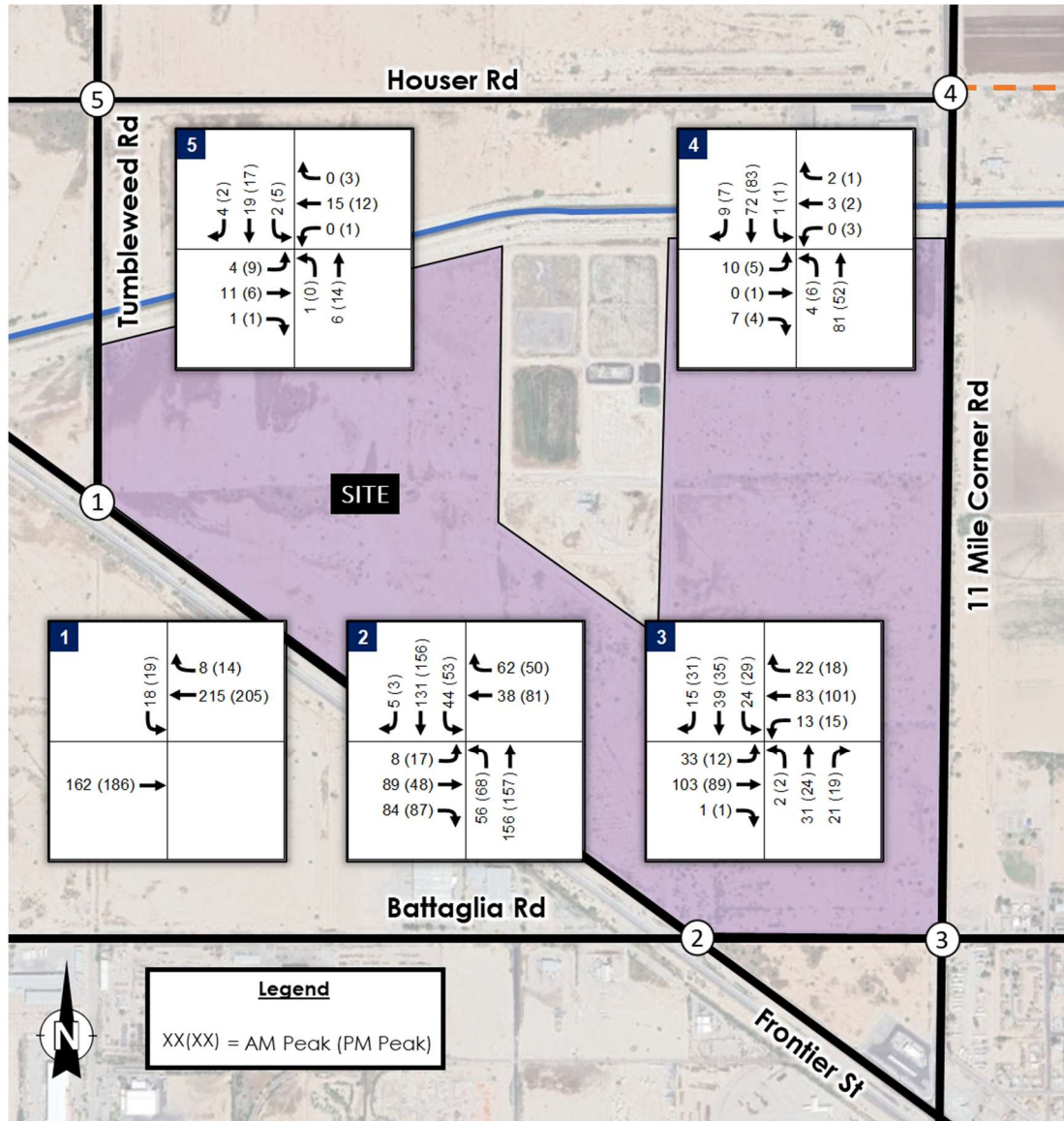


Figure 5: 2024 Existing Traffic Volumes

EXISTING LEVEL OF SERVICE ANALYSIS

The 2024 existing traffic volumes were analyzed to determine the level of service (LOS) during the weekday AM and PM peak hours at the three existing intersections within the study area. The LOS analysis was prepared using Synchro 11 software. The level of service criteria, as stated in the *Highway Capacity Manual, Sixth Edition*, is provided in **Table 3**. The analysis worksheets are included in **Appendix C**, and a summary of the existing level of service analysis is provided in **Table 4**.

Table 3: Level of Service Criteria

Level-of-Service	Average Delay (seconds per vehicle)	
	Unsignalized	Signalized
A	≤ 10	≤ 10
B	> 10 to 15	> 10 to 20
C	> 15 to 25	> 20 to 35
D	> 25 to 35	> 35 to 55
E	> 35 to 50	> 55 to 80
F	> 50	> 80

Table 4: 2024 Existing Level of Service

Intersection	Traffic Control	Movement/ Approach	Existing Conditions			
			AM Peak Hour		PM Peak Hour	
			Avg Delay (sec/veh)	LOS	Avg Delay (sec/veh)	LOS
1 Tumbleweed Road and Frontier Street	Minor Street Stop Control	EB Left	0.0	A	0.0	A
		SB Left/Right	11.6	B	11.8	B
2 Frontier Street and Battaglia Road	Minor Street Stop Control	EB Left/Thru/Right	16.9	C	17.2	C
		WB Left/Thru/Right	12.7	B	17.6	C
		NB Left	7.7	A	7.8	A
		SB Left	7.7	A	7.7	A
		INTERSECTION	8.7	A	8.6	A
3 11 Mile Corner Road and Battaglia Road	All Way Stop Sign	EB Approach	9.4	A	8.9	A
		EB Left/Thru	9.4	A	8.9	A
		EB Right	7.1	A	7.1	A
		WB Approach	8.5	A	8.7	A
		WB Left/Thru/Right	8.5	A	8.7	A
		NB Approach	8.0	A	7.9	A
		NB Left/Thru/Right	8.0	A	7.9	A
		SB Approach	8.4	A	8.3	A
		SB Left/Thru/Right	8.4	A	8.3	A
4 11 Mile Corner Road and Houser Road	Minor Street Stop Control	EB Left/Thru/Right	9.5	A	9.4	A
		WB Left/Thru/Right	9.7	A	9.7	A
		NB Left/Thru/Right	7.4	A	7.4	A
		SB Left/Thru/Right	7.4	A	7.3	A
5 Tumbleweed Road and Houser Road	Minor Street Stop Control	EB Left/Thru/Right	9.2	A	9.1	A
		WB Left/Thru/Right	9.4	A	9.2	A
		NB Left/Thru/Right	7.3	A	0.0	A
		SB Left/Thru/Right	7.2	A	7.3	A

Under existing traffic conditions, all movements at the study intersections operate at acceptable levels of service.

PROPOSED DEVELOPMENT

The parcel owner is requesting a rezoning of the parcel from the existing R1-12 to MU PAD and is concurrently pursuing a major amendment to the general plan to ensure the mixture of proposed land uses will be allowed. The site plan provided for this study is a concept plan for how the site may be developed and represents a conservative estimate of the amount of traffic the rezoned site may generate. Ultimately, a revised traffic analysis will be submitted at the time the development plan is finalized to confirm the recommendations made in this study.

SITE DESCRIPTION

The project is located on currently undeveloped land in Eloy, Arizona. The overall site will consist of a mixture of light industrial, commercial, and residential land uses. A preliminary site plan showing a potential layout for the development has been prepared. This analysis assumes the following:

- 32 acres of a medical plaza with 0.20 floor-area-ratio (FAR) equates to 278,780 buildable square feet. Based on the size, proposed layout, and limited data in the ITE manual, this is analyzed with ITE land use code (LUC) 720 – office complex.
- 206 acres of light industrial with 0.20 FAR equates to 1,794,670 buildable square feet. Based on the ITE manual and description of land uses, this is analyzed with ITE LUC 150 – warehousing.
- 15 acres of commercial on the west side of the site with 0.20 FAR equates to 130,680 buildable square feet. Based on the proposed layout, this is analyzed with ITE LUC 821 – shopping plaza without supermarket.
- 40 acres on the east side of the site split 50/50 with a “mixed-use” designation is 20 acres of commercial and 20 acres of multi-family residential. The 20 acres of commercial is assumed to have a 0.20 FAR with 174,240 square feet of buildable space; based on the buildable size it is analyzed as ITE LUC 820 – shopping center. The 20 acres of multi-family residential is assumed to have a density of 15 dwelling units per acre (DU/acre), equating to 300 DU; based on the mixed use classification, it was analyzed as ITE LUC 221 – multi-family housing (mid-rise).
- 19 acres of residential on the southeast side of the site may become either single-family attached housing (townhomes) or multi-family housing. The single-family attached housing may have a density around 10 DU/acre to yield 190 DU, and the multi-family housing may have a density around 15 DU/acre to yield 285 DU. As the multi-family housing with 285 units is expected to generate more trips than the single-family attached housing with 190 units, LUC 220 – multi-family housing (low-rise) – was analyzed in this report.
- 42 acres of single-family housing with 185 total DU are planned on the northeast side of the site. This was analyzed with ITE LUC 210 – single-family detached housing.

Coordination with the development team indicates the tentative phasing is:

- 2025 – 25% of industrial and medical constructed
- 2030 – 50% of industrial and medical constructed
- 2035 – 100% of industrial, commercial, and residential constructed

ACCESS

The project is anticipated to be accessed by a total of nine new driveways – seven full access driveways and two right-in/right-out driveways. The project site plan and location of the proposed driveways are shown in **Figure 6**. A detailed site plan is provided in **Appendix D**. Six driveways will be constructed by opening year to serve the industrial and medical parcels (Driveways A, B, C, D, E, and H), and three additional driveways will be constructed by final buildout to serve the residential parcels (Driveways F, G, and I). Driveways A, B, D, E, and H are expected to provide cross access to serve multiple land uses.

Driveway A is a full-access driveway on Tumbleweed Road on the north side of the site, approximately 550 feet north of Frontier Street. The driveway will form an east-west internal spine road serving multiple industrial and medical parcels, and will eventually provide access to the commercial parcels.

Driveway B is planned on Frontier Street approximately 800 feet east of Tumbleweed Road. The driveway is anticipated to facilitate full-access movements to serve the industrial and medical parcels and eventually provide cross-access to the western commercial parcel.

Driveway C is anticipated to solely serve the industrial and medical parcels. The full-access driveway is proposed on Frontier Street approximately 0.4 miles west of Battaglia Road and 0.5 miles east of Tumbleweed Road.

Driveway D is planned to facilitate right-in/right-out access on Frontier Street approximately 600 feet west of Battaglia Road. The driveway will serve the industrial and office parcel, and eventually provide cross-access to the eastern commercial parcel.

Driveway E will form the east-west internal spine road serving various parcels in the development. The full-access driveway is planned nearly 1,200 feet north of Battaglia Road.

Driveway F will solely serve the multi-family residential parcel, and is planned to allow for full-access movements. The driveway is tentatively planned 600 feet north of Driveway E.

Driveway G and Driveway I will solely serve the single-family residential parcels. Driveway G is anticipated to offer full-access, while Driveway I is anticipated to provide right-in/right-out access due to its proximity to a utility service road located immediately north of the project site (approximately 400 feet north). Driveway G is planned 1,000 feet north of Driveway F and Driveway I planned 2,250 feet north of Driveway G and about 400 feet south of the existing utility service road.

Driveway H will provide access to the medical plaza and two single-family residential communities. The driveway is anticipated to provide full-access and will be approximately 700 feet north of Driveway G.

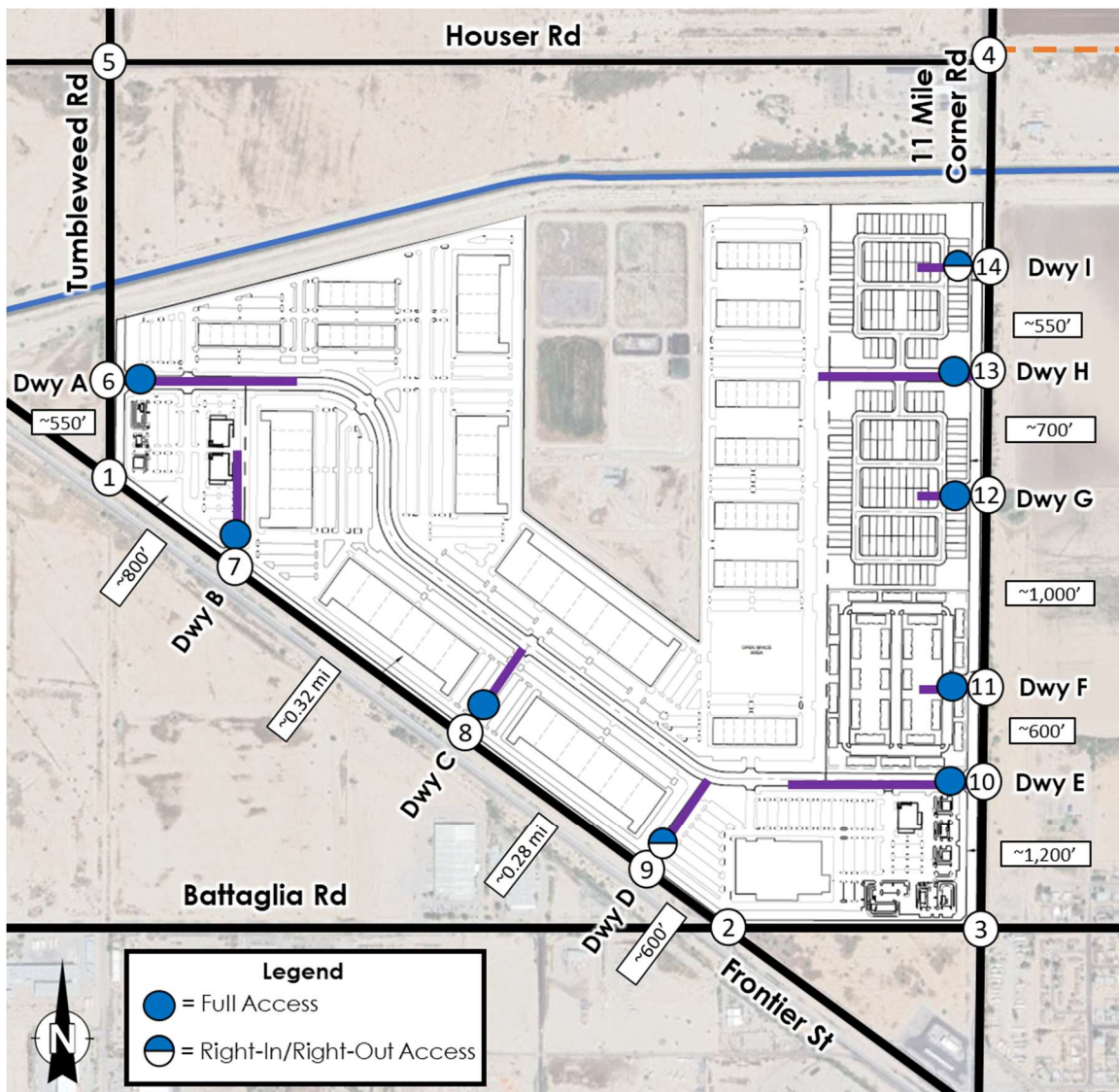


Figure 6: Site Plan and Driveway Spacing

TRIP GENERATION

The trip generation for the project was estimated using the Institute of Transportation Engineers' (ITE) Trip Generation Manual, 11th Edition. ITE's Trip Generation Manual contains data collected by various transportation professionals for a wide range of different land uses. The data summarized in the manual includes average rates and equations that have been established correlating the relationship between an independent variable that describes the development size and the generated trips for each land use.

As previously noted in the SITE DESCRIPTION section, the following land uses were analyzed: LUC 720 Office Park with 278,780 square feet of medical plaza, ITE LUC 150 Warehousing with 1,794,670 square feet of light industrial, ITE LUC 821 Shopping Plaza without Supermarket with 130,680 square feet of commercial on the western side, ITE LUC 820 Shopping Center with 174,240 square feet of commercial on the eastern side, ITE LUC 221 Multi-Family Residential (Mid-Rise) with 300 dwelling units in the mixed-use commercial area, ITE LUC 220 Multi-Family Residential (Low-Rise) with 285 dwelling units, and ITE LUC 210 Single Family Detached Housing with 228 dwelling units. The trip generation worksheets are provided in **Appendix E**.

Please note that a previous version of the site plan was utilized when creating the trip generation. The previous site plan depicted 228 single-family dwelling units, while the current site plan depicts 185 DU. The trip generation estimates with 228 DU are utilized in this report to maintain a conservative analysis.

Internal capture was considered to account for the trips within the retail, mixed-use residential parcels, light industrial, and medical office parcels. A small reduction was applied based on the internal capture methodology set forth in NCHRP Report 684, and internal capture worksheets are provided in **Appendix E**.

The estimated trips for the proposed TES Eloy development at full buildout (2035) are shown in **Table 5**.

Table 5: Full Buildout (2035) Trip Generation

DESCRIPTION OF LAND USE					VEHICLE GENERATED TRIPS						
ID	Land Use	ITE LUC	Size		Daily Total	AM Peak Hour		PM Peak Hour			
					Enter	Exit	Total	Enter	Exit	Total	
1	Medical Plaza (Office Park)	750	278.78	KSF	3,331	406	50	456	52	320	372
2	Warehousing	150	1794.67	KSF	3,069	235	70	305	90	233	323
3	Shopping Plaza (40-150k) without Supermarket	821	130.68	KSF	8,824	140	86	226	332	346	678
4	Mixed Use: Shopping Center (>150k)	820	174.24	KSF	10,413	147	89	236	404	438	842
5	Mixed Use: Multi-Family Residential (Mid-Rise)	221	300	DU	1,385	28	92	120	72	45	117
6	Multi-Family Residential (Low-Rise)	220	285	DU	1,921	27	87	114	92	53	145
7	Single-Family Detached Housing	210	228	DU	2,154	40	120	160	136	80	216
Total					31,097	1,023	594	1,617	1,178	1,515	2,693
<i>Internal Reduction Percentage</i>					<i>11%</i>	<i>7%</i>	<i>16%</i>	<i>10%</i>	<i>14%</i>	<i>10%</i>	<i>11%</i>
<i>Internal Reduction Trips</i>					<i>2,963</i>	<i>64</i>	<i>64</i>	<i>128</i>	<i>132</i>	<i>132</i>	<i>264</i>
Total Trips w/ Reduction					28,134	959	530	1,489	1,046	1,383	2,429

As summarized in **Table 5**, the full buildout of the TES Eloy development is anticipated to generate a net total of 28,134 daily trips (entering and exiting) with internal reduction. A net total of 1,489 AM peak hour trips and 2,429 PM peak hour trips are projected.

It should be noted that for the opening year (2025), only 25% of the industrial and medical sites are expected to be constructed. Five years after opening (2030), 50% of the industrial and medical area is expected to be constructed. Therefore, the 2025 and 2030 trip generation are shown in **Table 6** and **Table 7** for clarity.

Table 6: 25% Industrial and Medical (2025) Trip Generation

DESCRIPTION OF LAND USE					VEHICLE GENERATED TRIPS						
ID	Land Use	ITE LUC	Size		Daily Total	AM Peak Hour		PM Peak Hour			
					Enter	Exit	Total	Enter	Exit	Total	
1	Medical Plaza (Office Park)	750	279	KSF	833	102	13	114	13	80	93
2	Warehousing	150	1795	KSF	767	59	18	76	23	58	81
Total					1,600	161	31	190	36	138	174

Table 7: 50% Industrial and Medical (2030) Trip Generation

DESCRIPTION OF LAND USE					VEHICLE GENERATED TRIPS						
ID	Land Use	ITE LUC	Size		Daily Total	AM Peak Hour		PM Peak Hour			
					Enter	Exit	Total	Enter	Exit	Total	
1	Medical Plaza (Office Park)	750	279	KSF	1,666	203	25	228	26	160	186
2	Warehousing	150	1795	KSF	1,535	118	35	153	45	117	162
Total					3,201	321	60	381	71	277	348

TRIP DISTRIBUTION AND ASSIGNMENT

The generated trips for the proposed development were distributed and assigned to the surrounding street system based on access to nearby freeways, the assumed location of the driveways, and anticipated traffic patterns and volumes in the general Eloy area.

Seven (7) trip distributions were prepared for the separate industrial, medical office, western commercial, eastern commercial, mixed-use multi-family residential, general apartments, and single-family residential developments. The distribution percentages used in the analysis are depicted in **Figure 7** through **Figure 13**.

Using the trip generation estimates and the site distribution assumptions, the hourly volumes were assigned to the study network. The 2025, 2030, and 2035 industrial assignments are depicted in **Figure 14** through **Figure 16**. The 2025, 2030, and 2035 medical plaza assignments are depicted in **Figure 17** through **Figure 19**. The 2035 assignment for western commercial, eastern commercial, mixed-use multi-family, general apartments, and single-family residential are shown in **Figure 20** through **Figure 24**.

The overall combined 2025, 2030, and 2035 assignments used in this analysis are shown in **Figure 25**, **Figure 26**, and **Figure 27**, respectively.

FUTURE TRAFFIC

ANNUAL GROWTH RATE AND BACKGROUND TRAFFIC VOLUMES

Historical traffic volumes from the Arizona Department of Transportation Traffic Data Management System was reviewed to determine an appropriate growth rate in the area. The historical volumes did not provide sufficient data in the vicinity of the project site. To account for future growth in the area, a conservative annual growth rate of 4% was utilized to estimate future traffic volumes for the 2025 opening year, 2030 horizon year, and the 2035 horizon year.

The peak hour traffic volumes for 2025, 2030, and 2035 background conditions are depicted in **Figure 28**, **Figure 29**, and **Figure 30**, respectively.

TOTAL TRAFFIC VOLUMES

The total traffic volumes represent the sum of the background and site traffic volumes. The 2025 total traffic volumes shown in **Figure 31** include the 2025 background traffic volumes (**Figure 28**) and the combined 2025 assignment (**Figure 25**).

The 2030 total traffic volumes illustrated in **Figure 32** include the 2030 background traffic volumes (**Figure 29**) and the combined 2030 assignment (**Figure 26**).

The 2035 total traffic volumes depicted in **Figure 33** include the 2035 background traffic volumes (**Figure 30**) and the overall 2035 assignment (**Figure 27**).

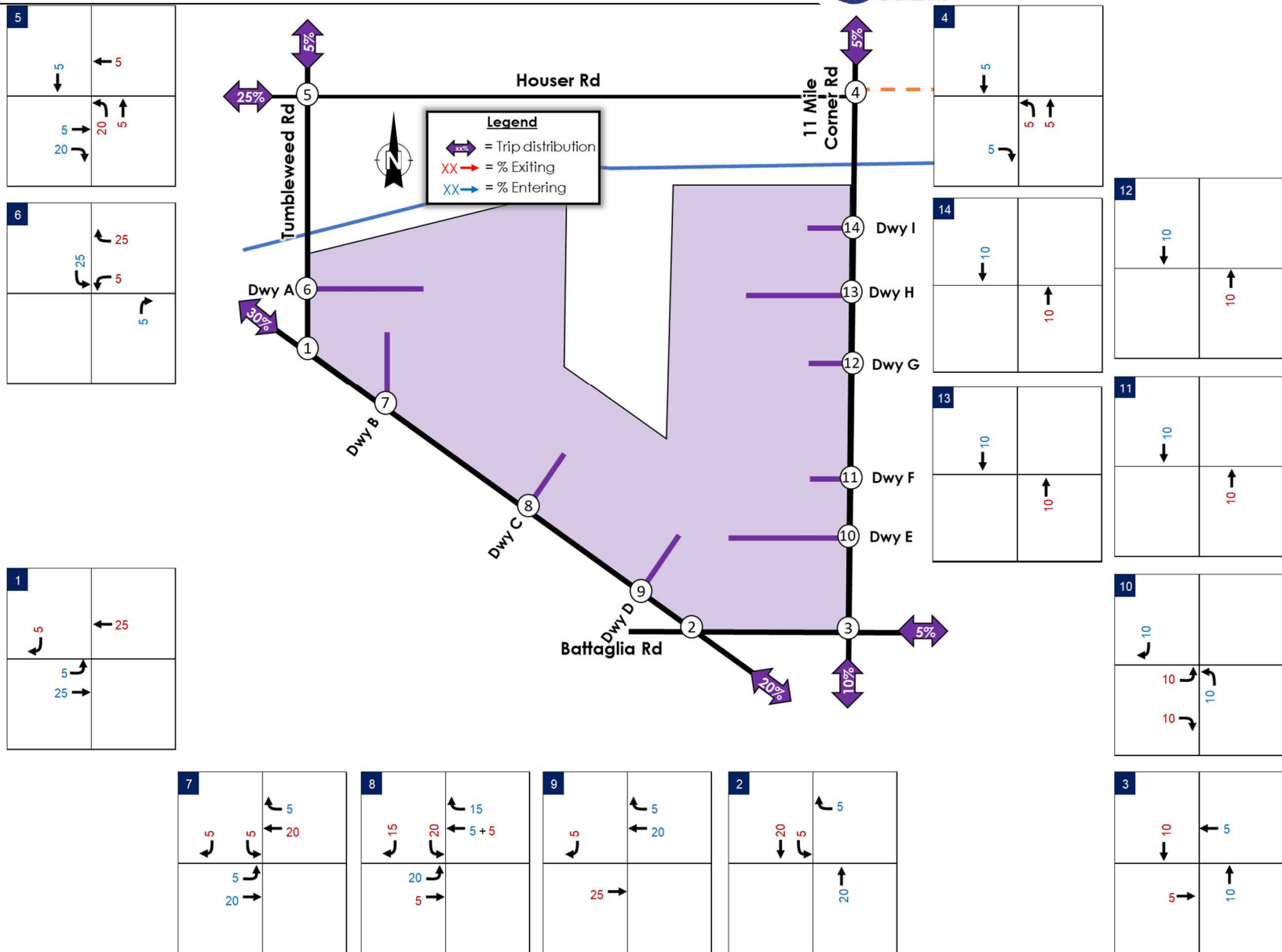


Figure 7: Industrial Trip Distribution

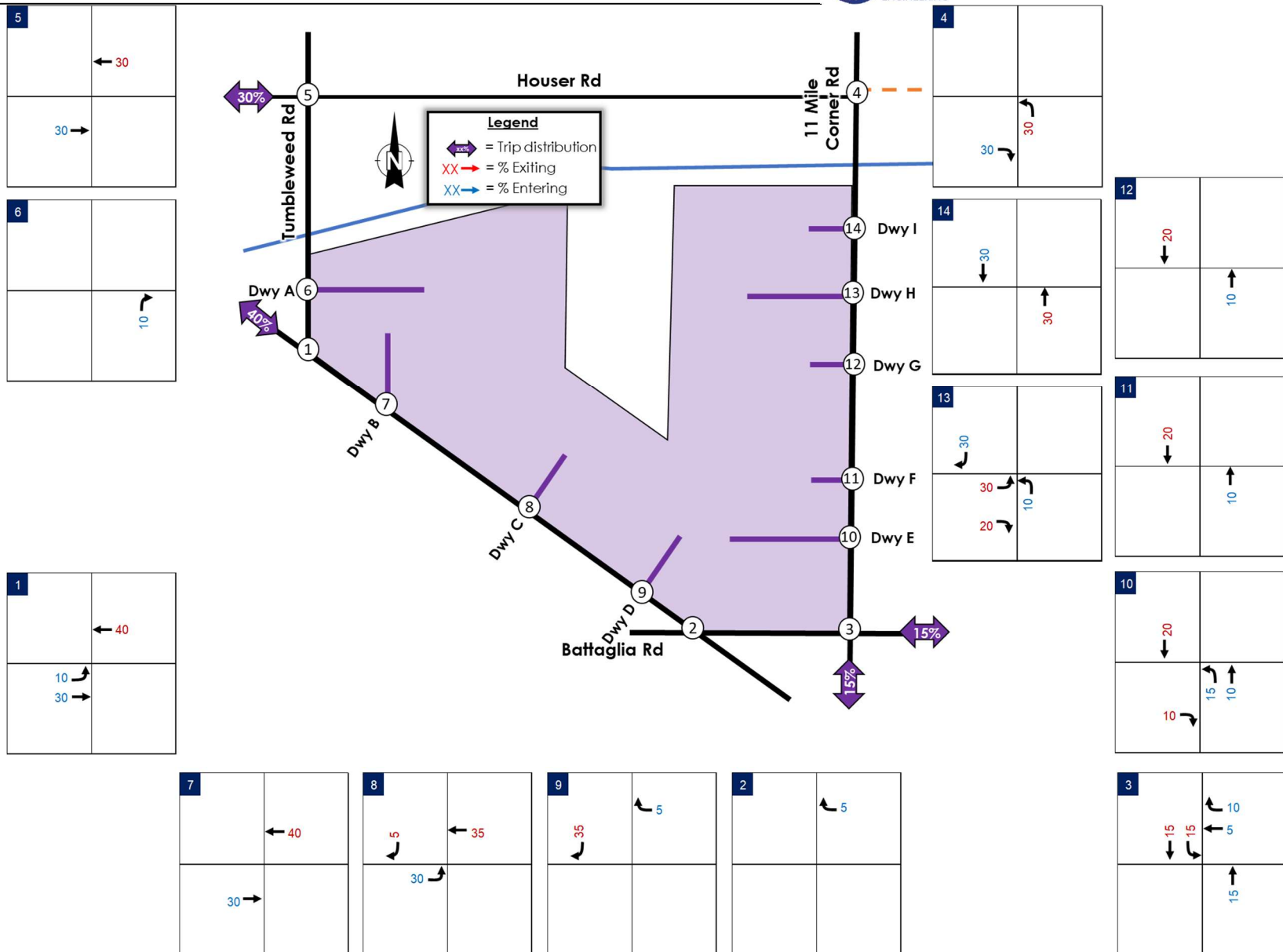


Figure 8: Medical Office Trip Distribution

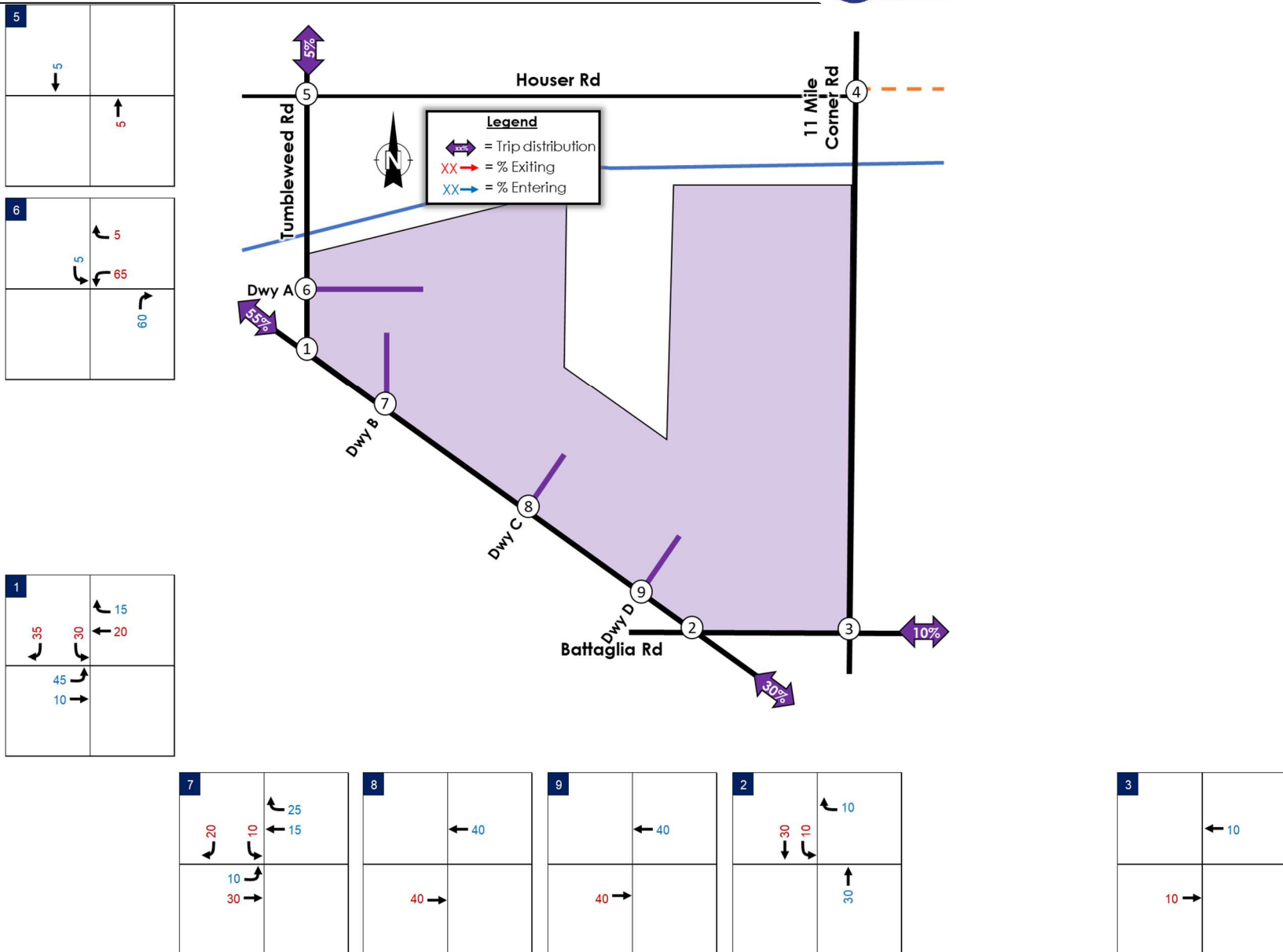


Figure 9: Western Commercial Trip Distribution

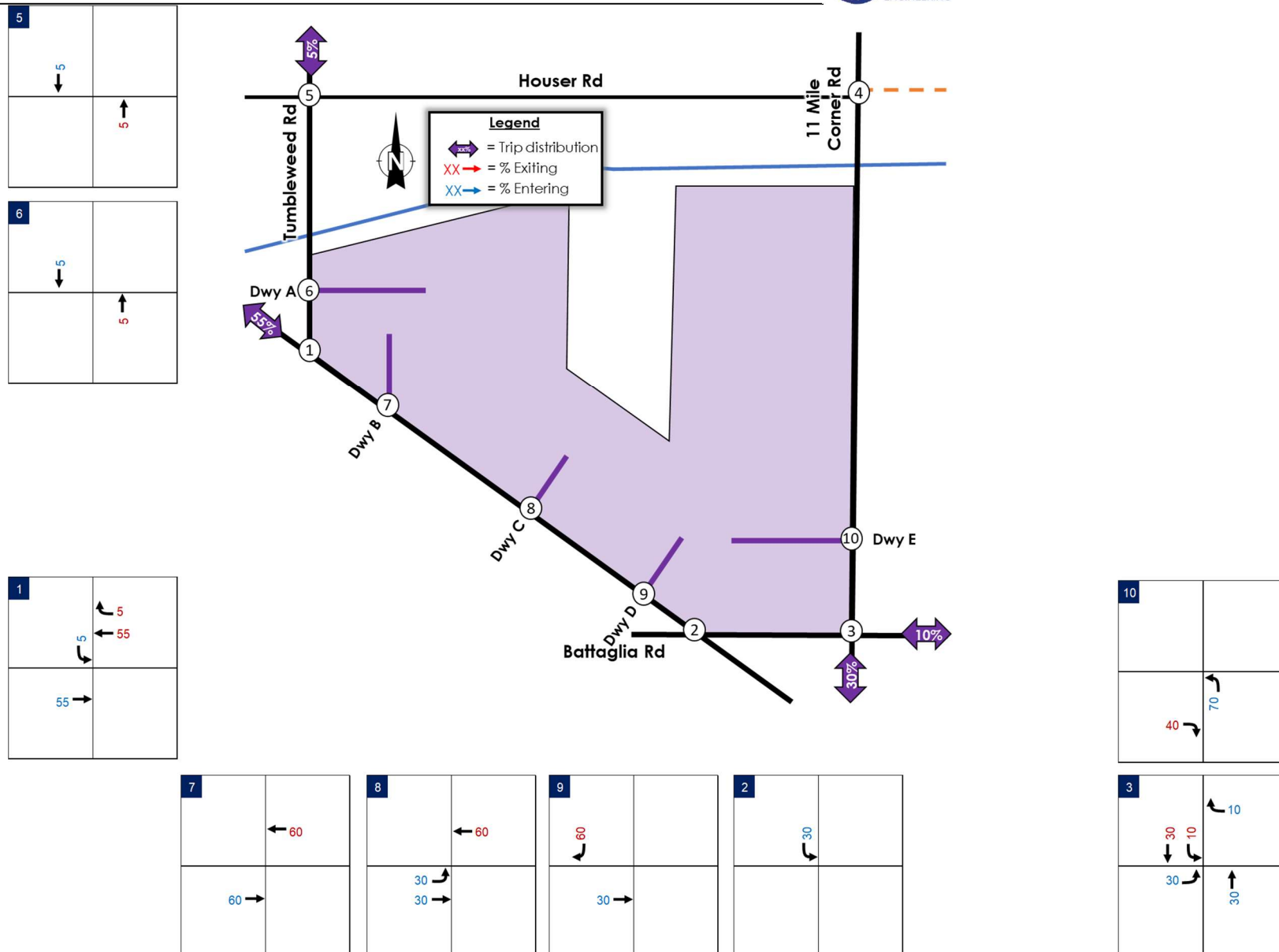


Figure 10: Eastern Commercial Trip Distribution

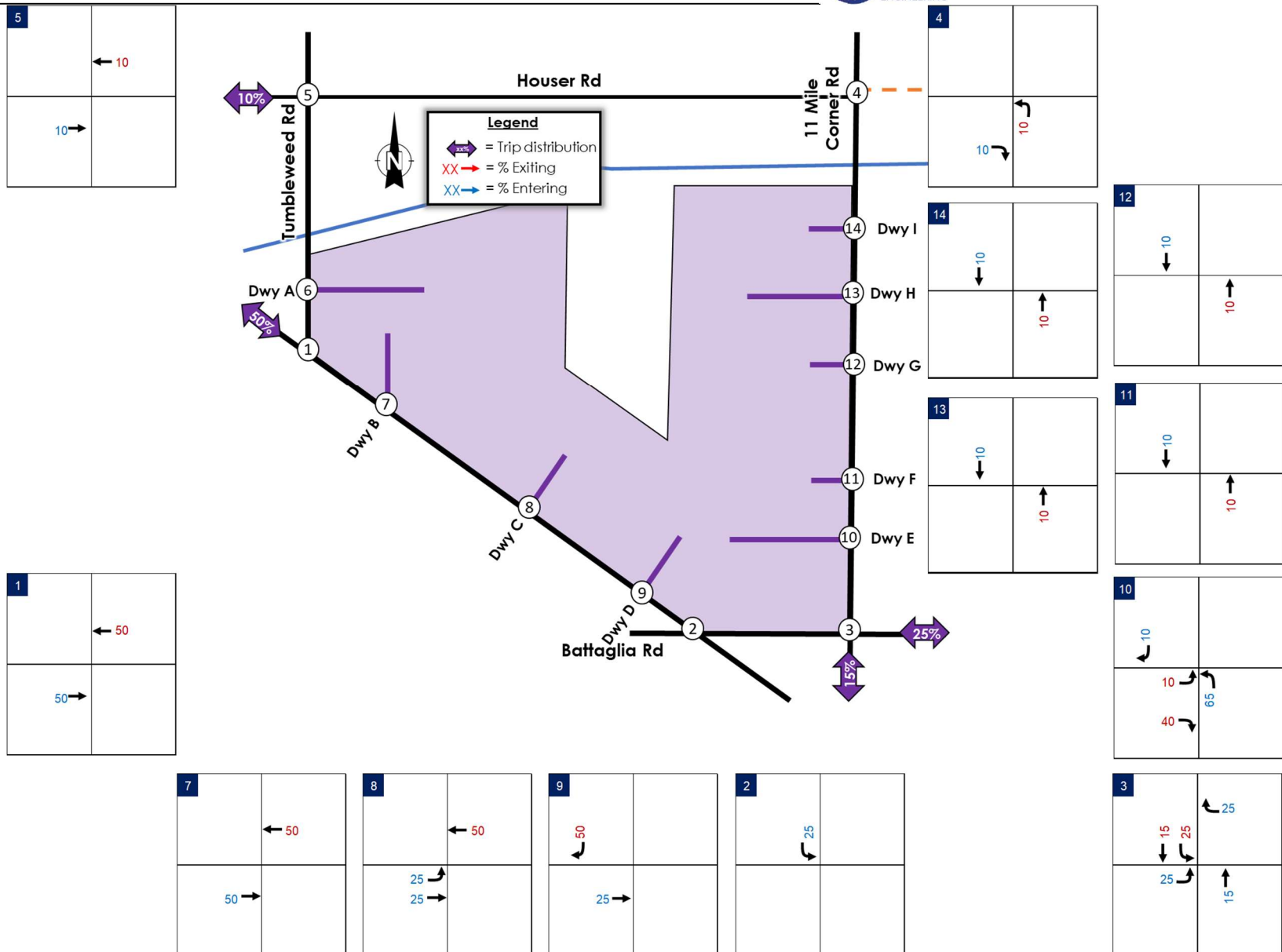


Figure 11: Mixed-Use Multi-Family Residential Trip Distribution



Figure 12: General Multi-Family Residential Trip Distribution

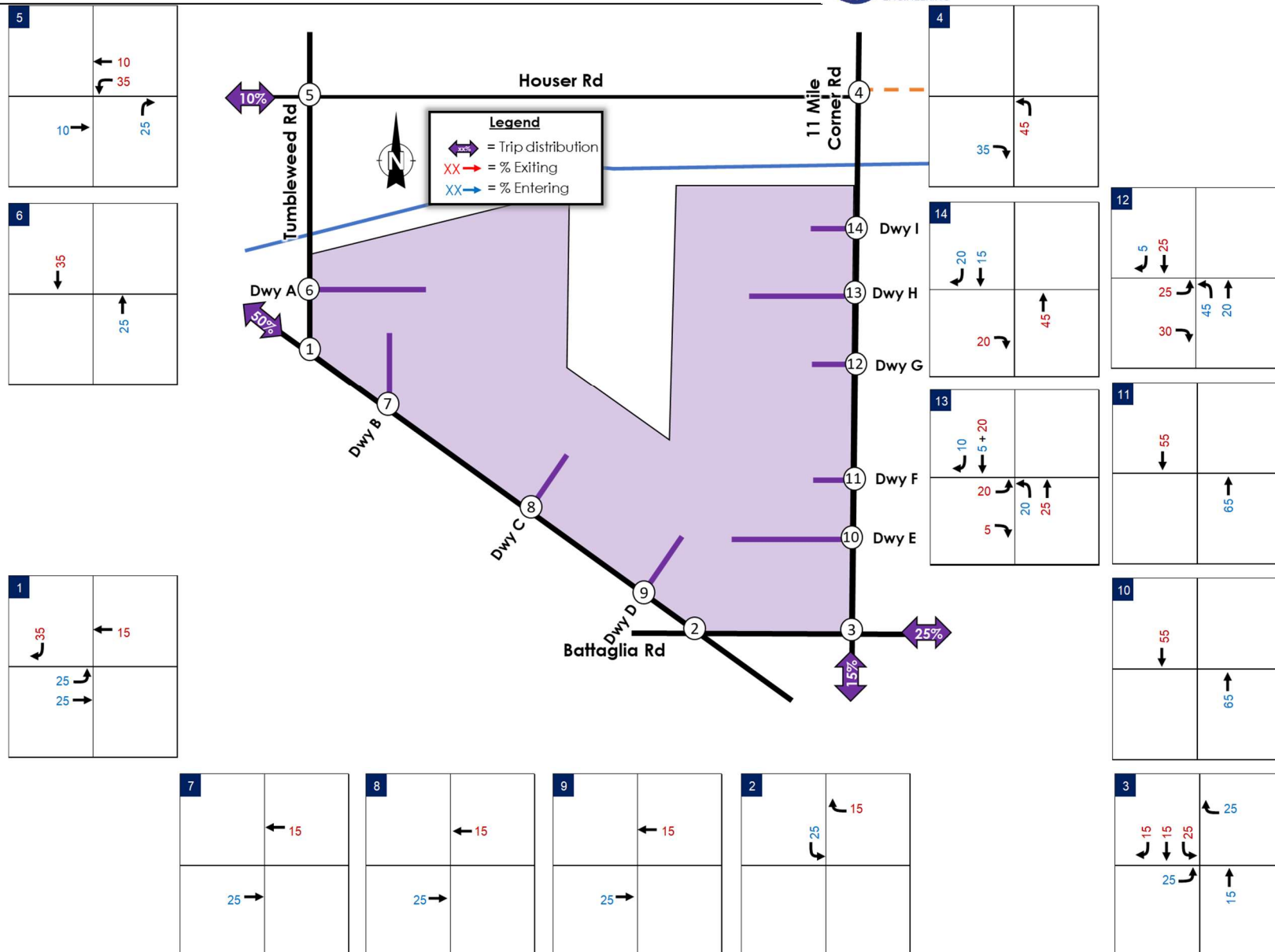


Figure 13: Single-Family Residential Trip Distribution

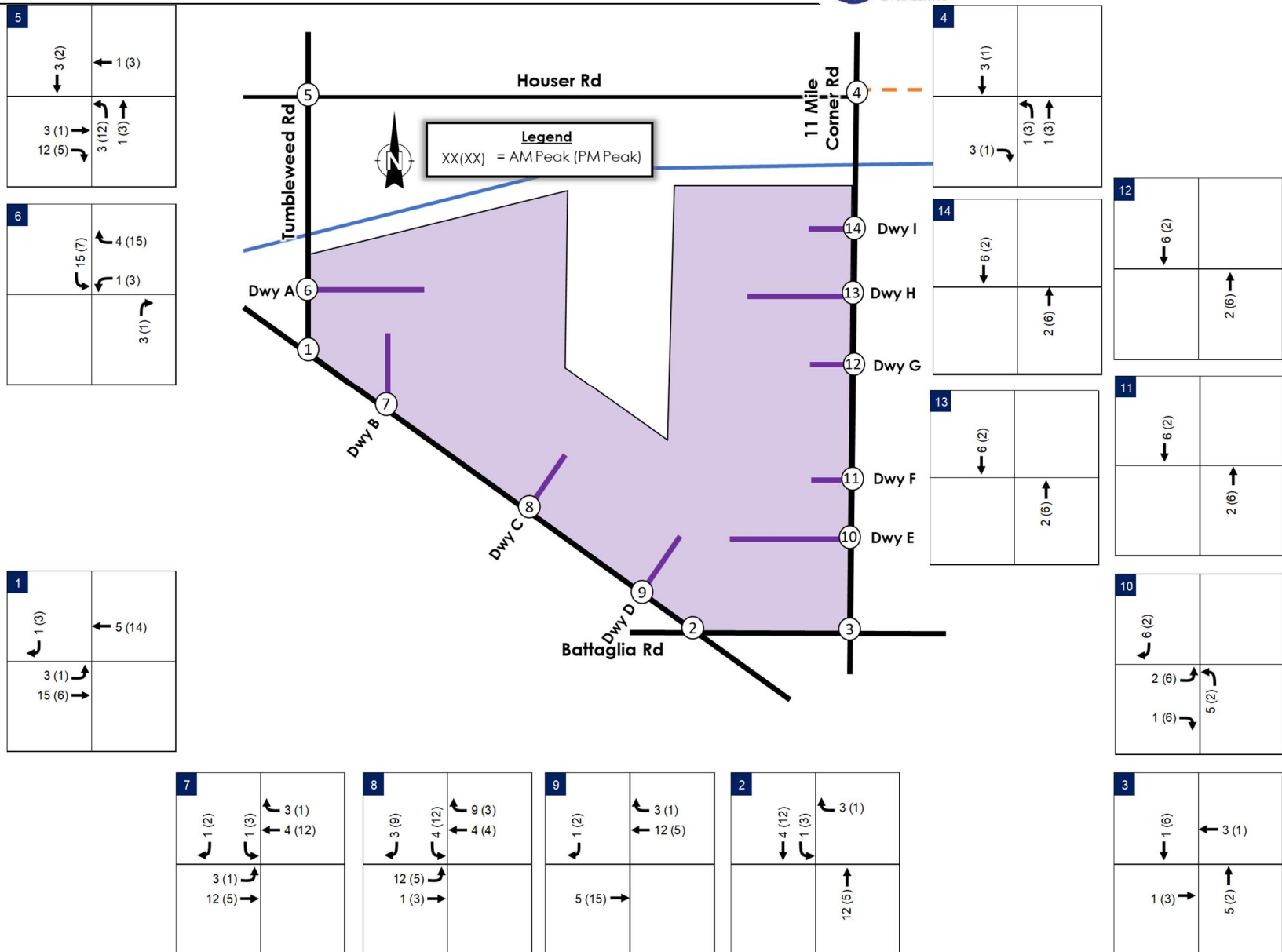


Figure 14: 2025 Industrial Assignment

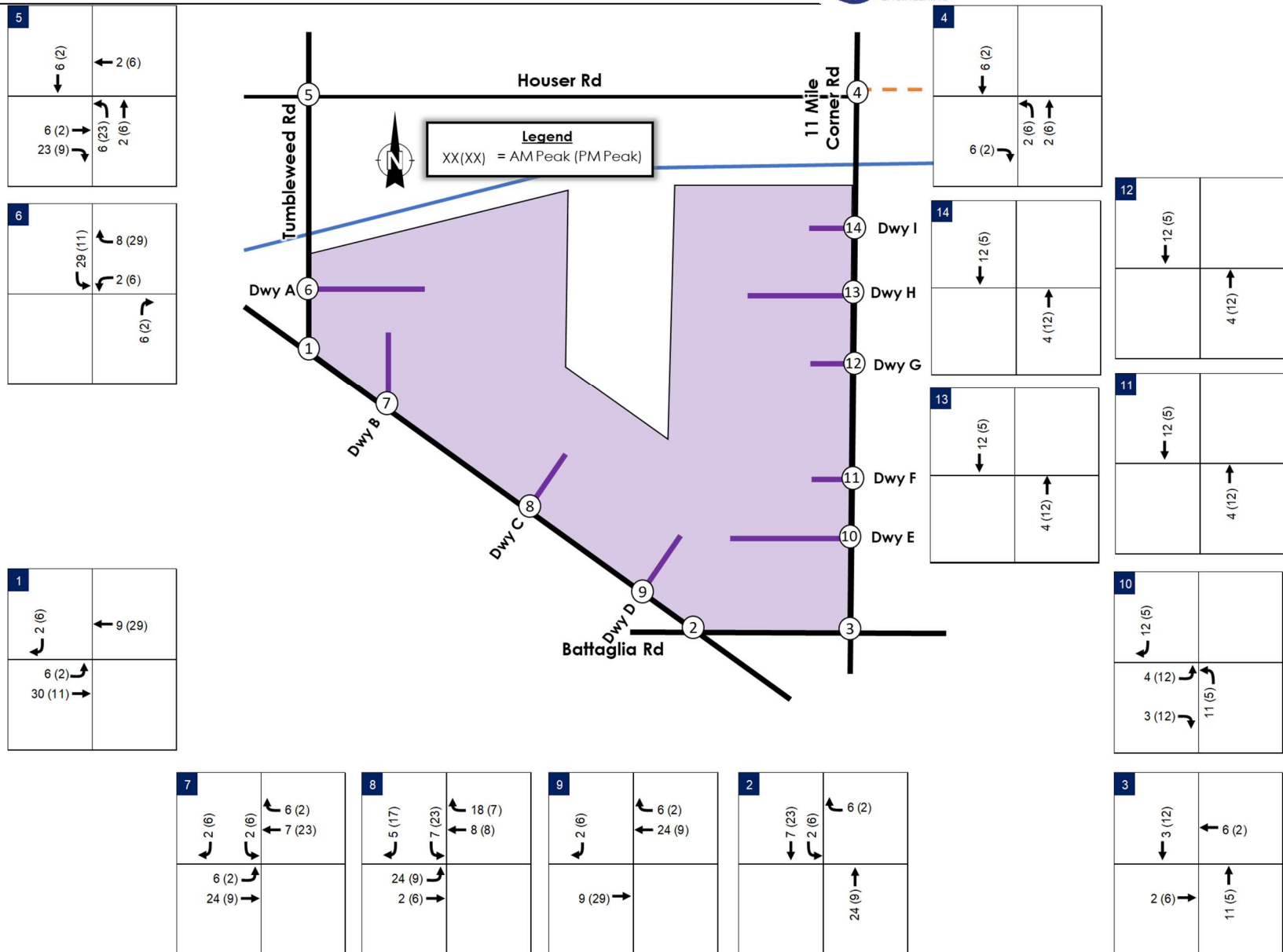


Figure 15: 2030 Industrial Assignment

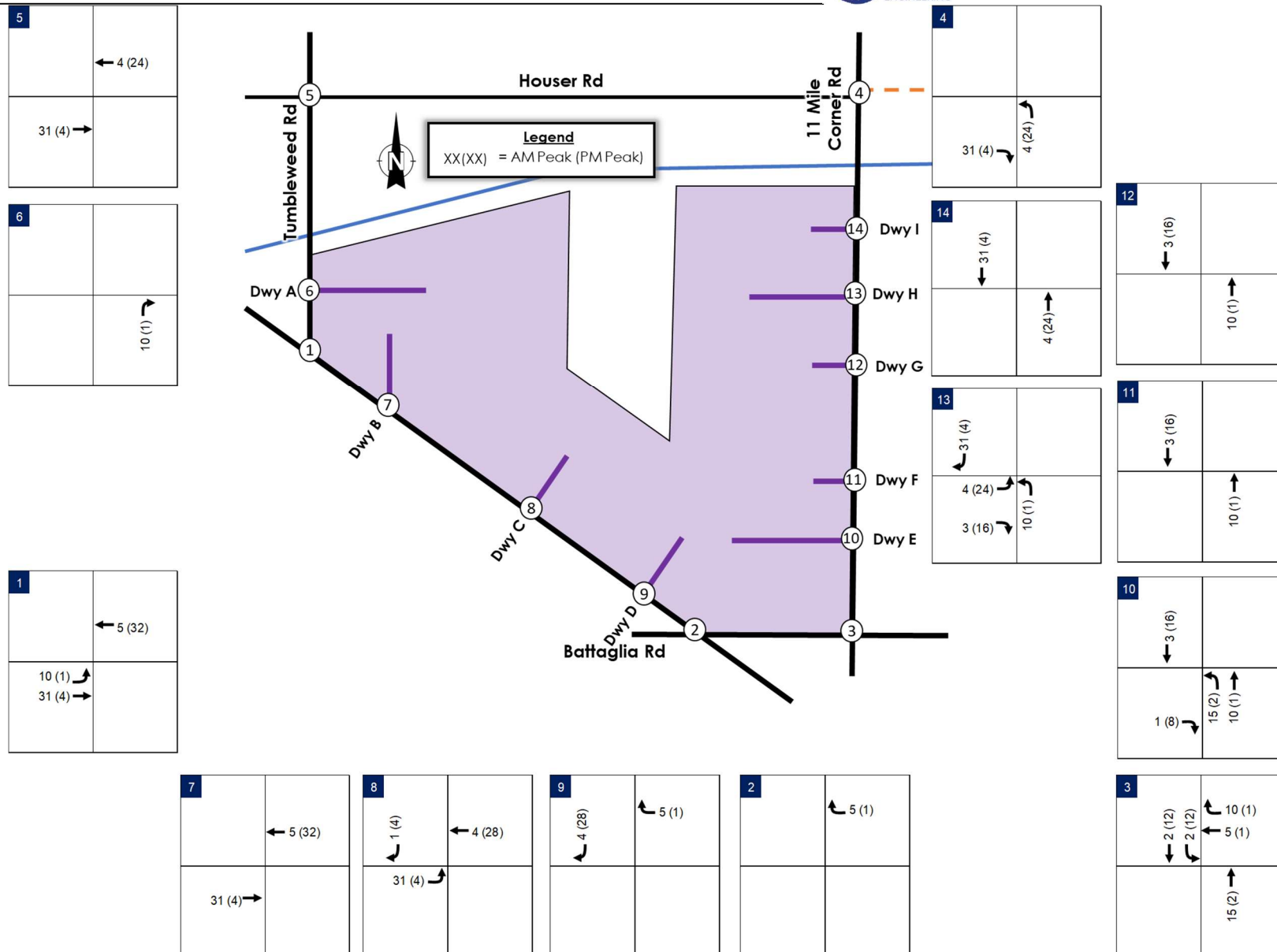


Figure 17: 2025 Medical Office Assignment

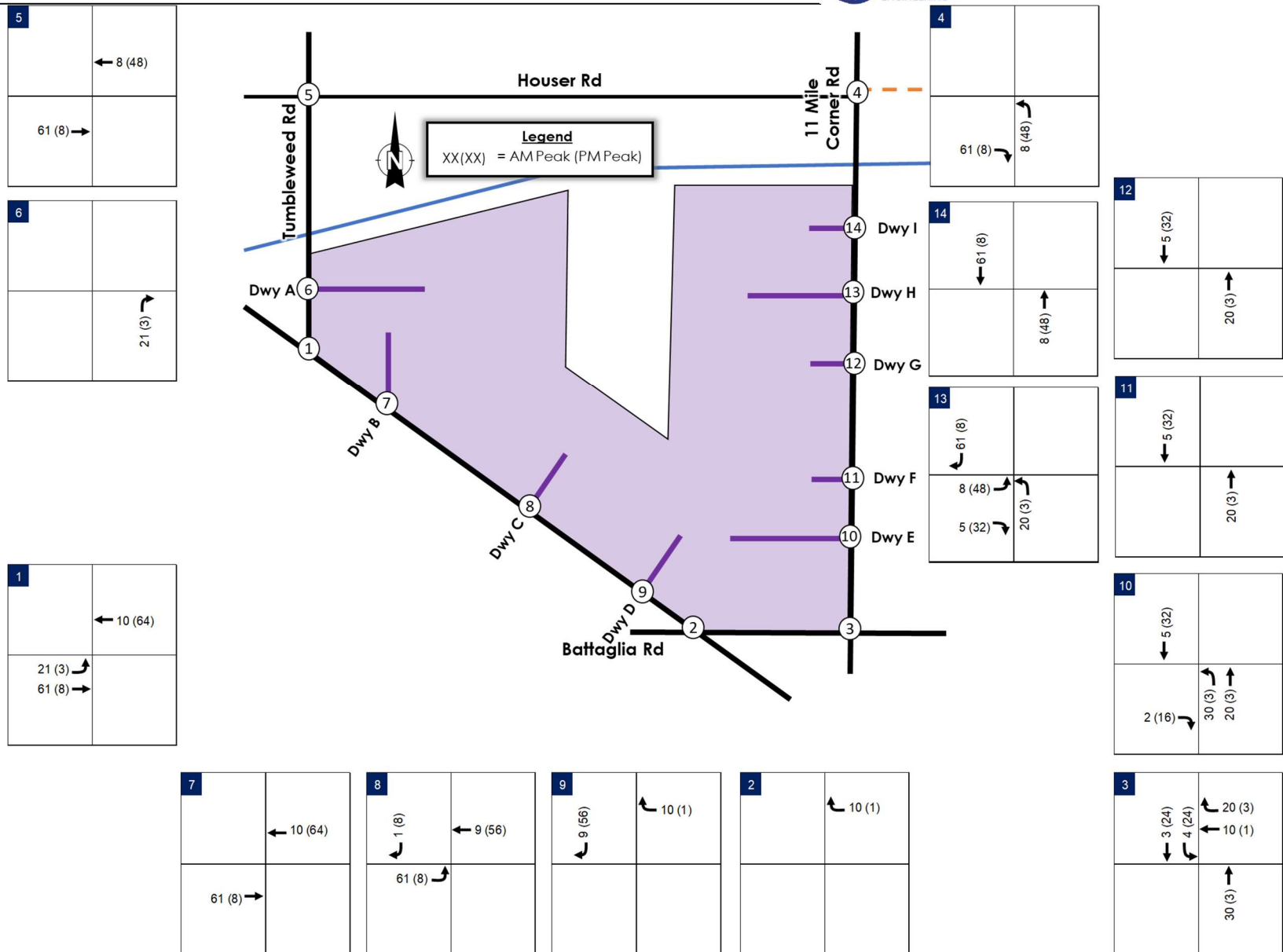


Figure 18: 2030 Medical Office Assignment

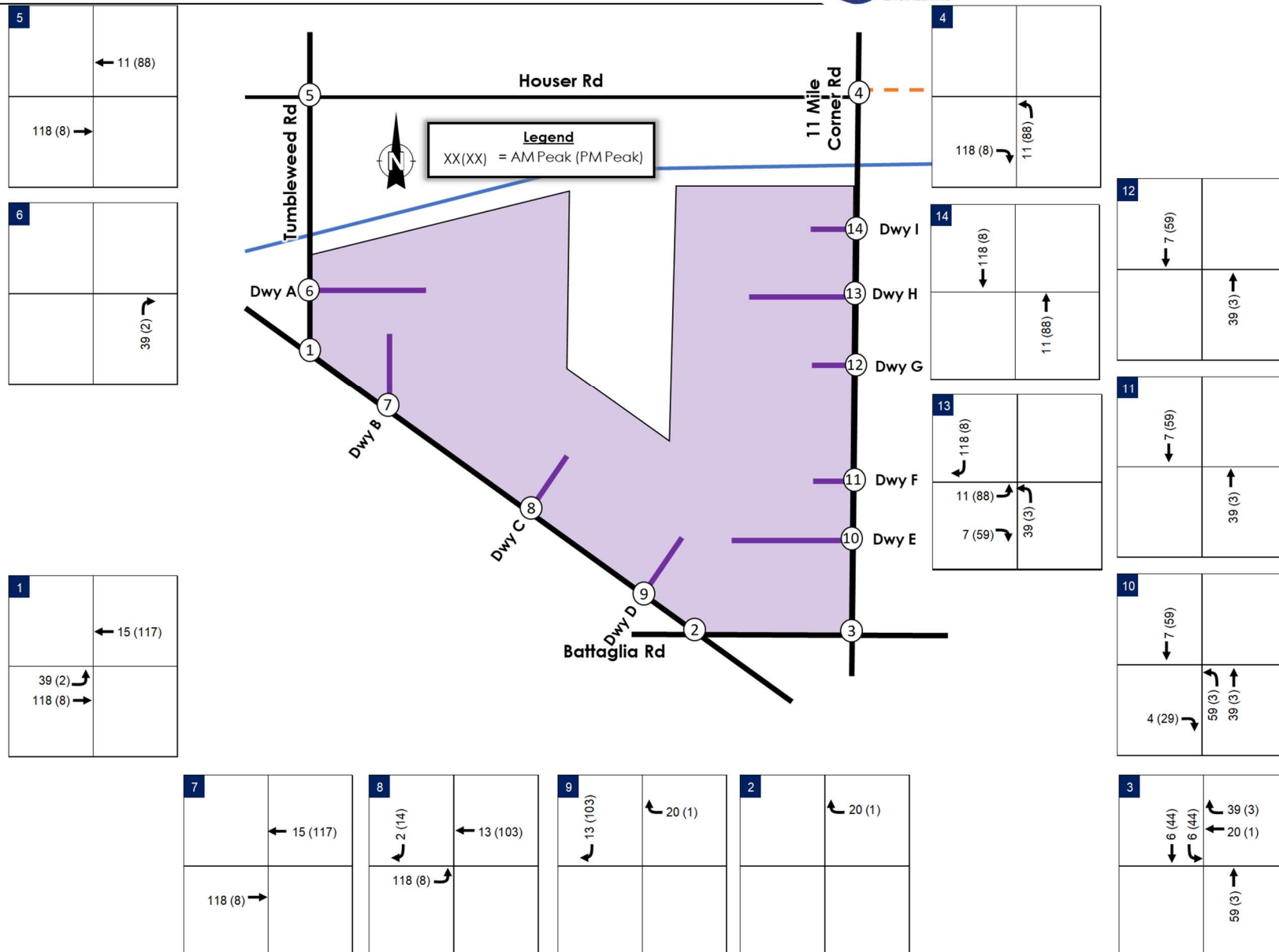


Figure 19: 2035 Medical Office Assignment

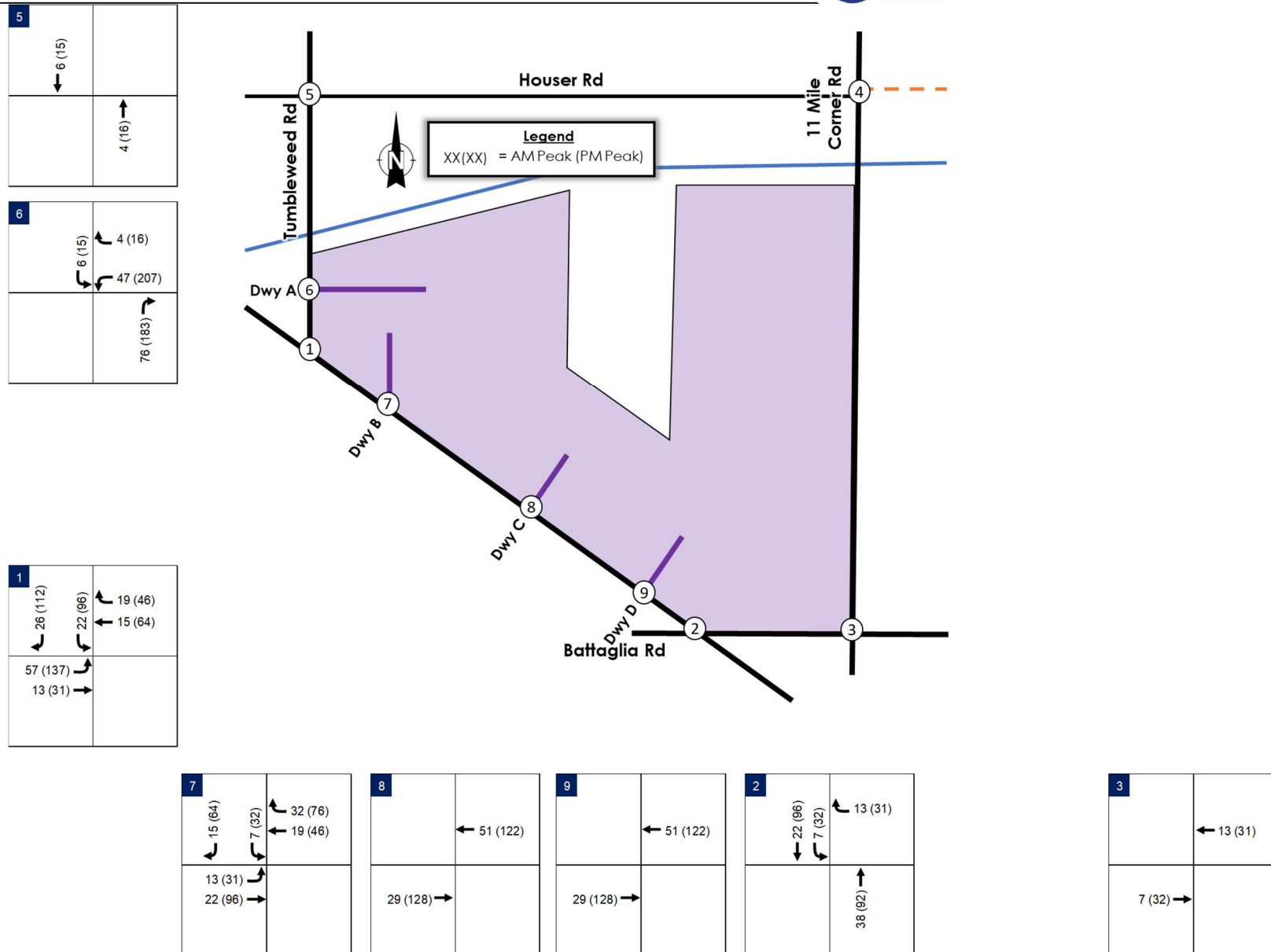


Figure 20: 2035 Western Commercial Assignment



Figure 21: 2035 Eastern Commercial Assignment

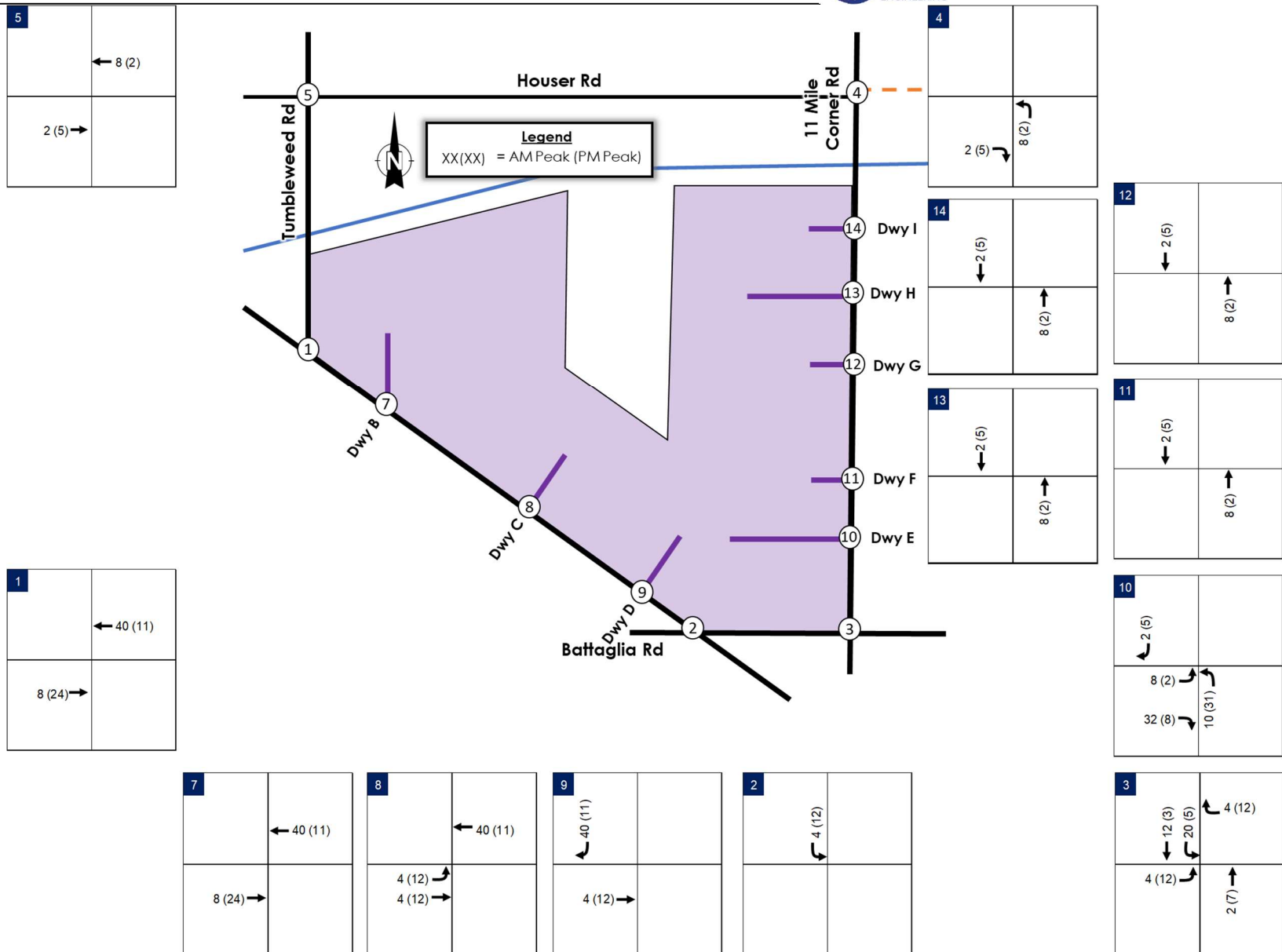


Figure 22: 2035 Mixed-Use Multi-Family Residential Assignment



Figure 23: 2035 General Multi-Family Assignment

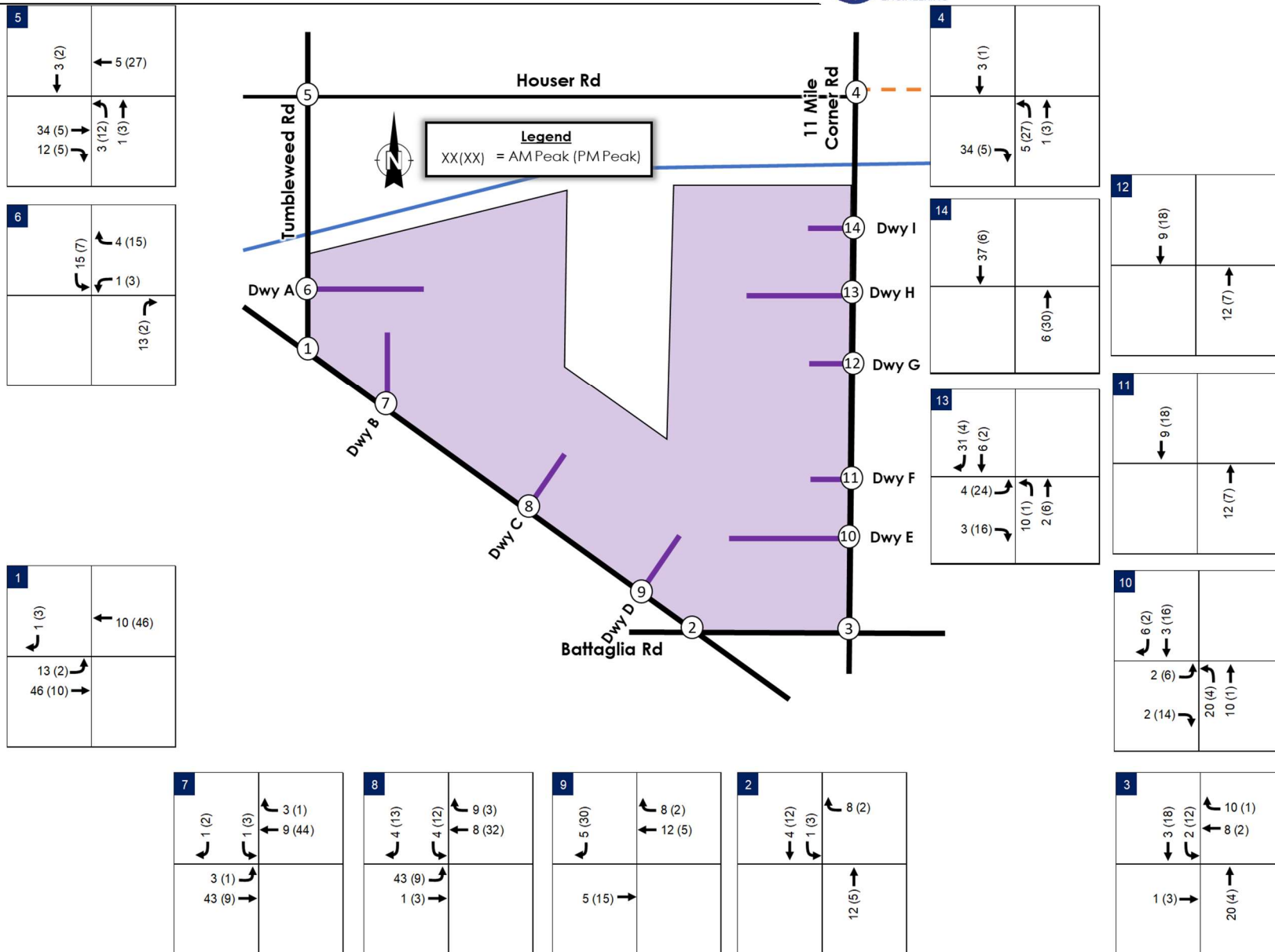


Figure 25: Overall 2025 Assignment

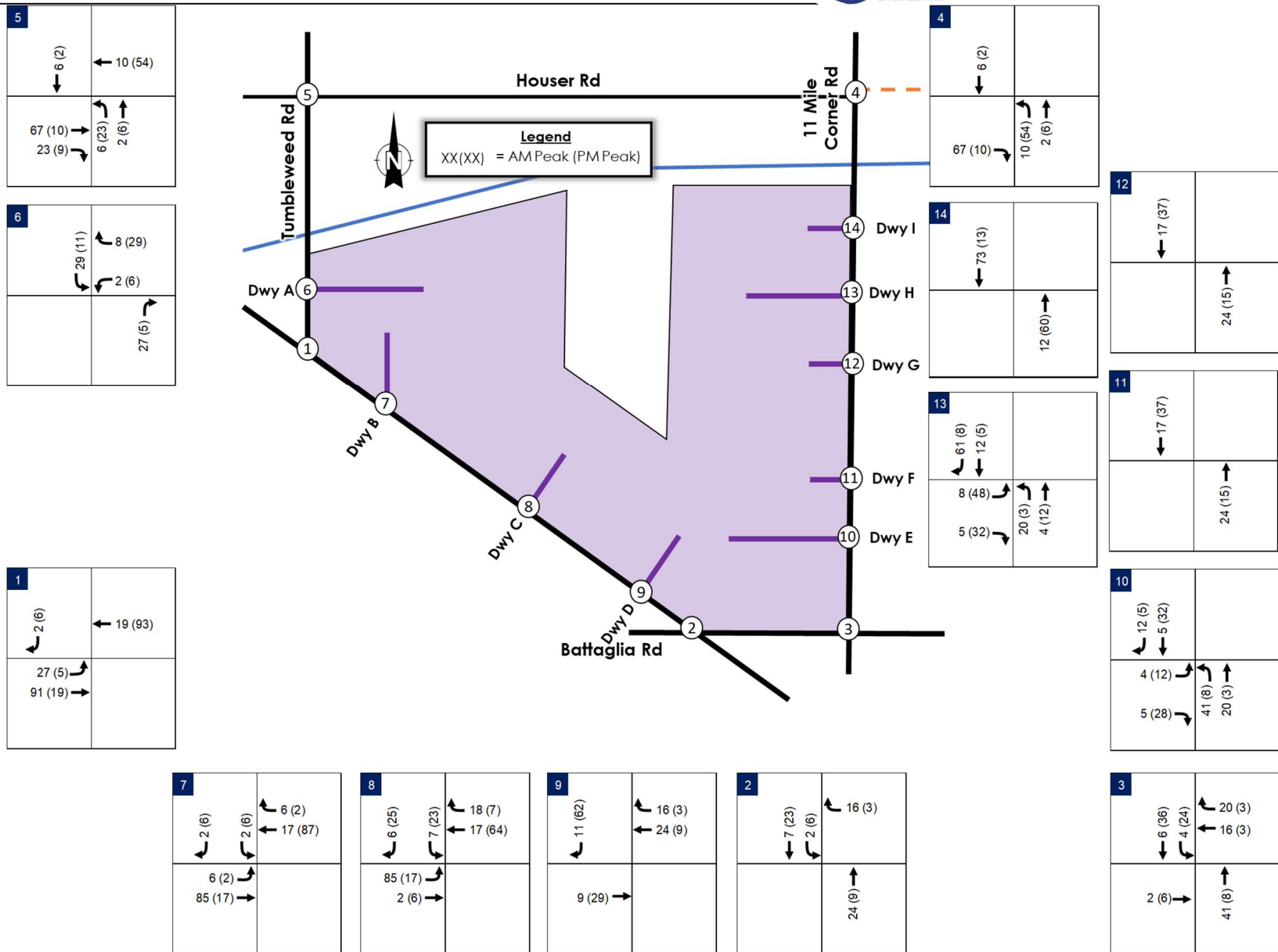


Figure 26: Overall 2030 Assignment

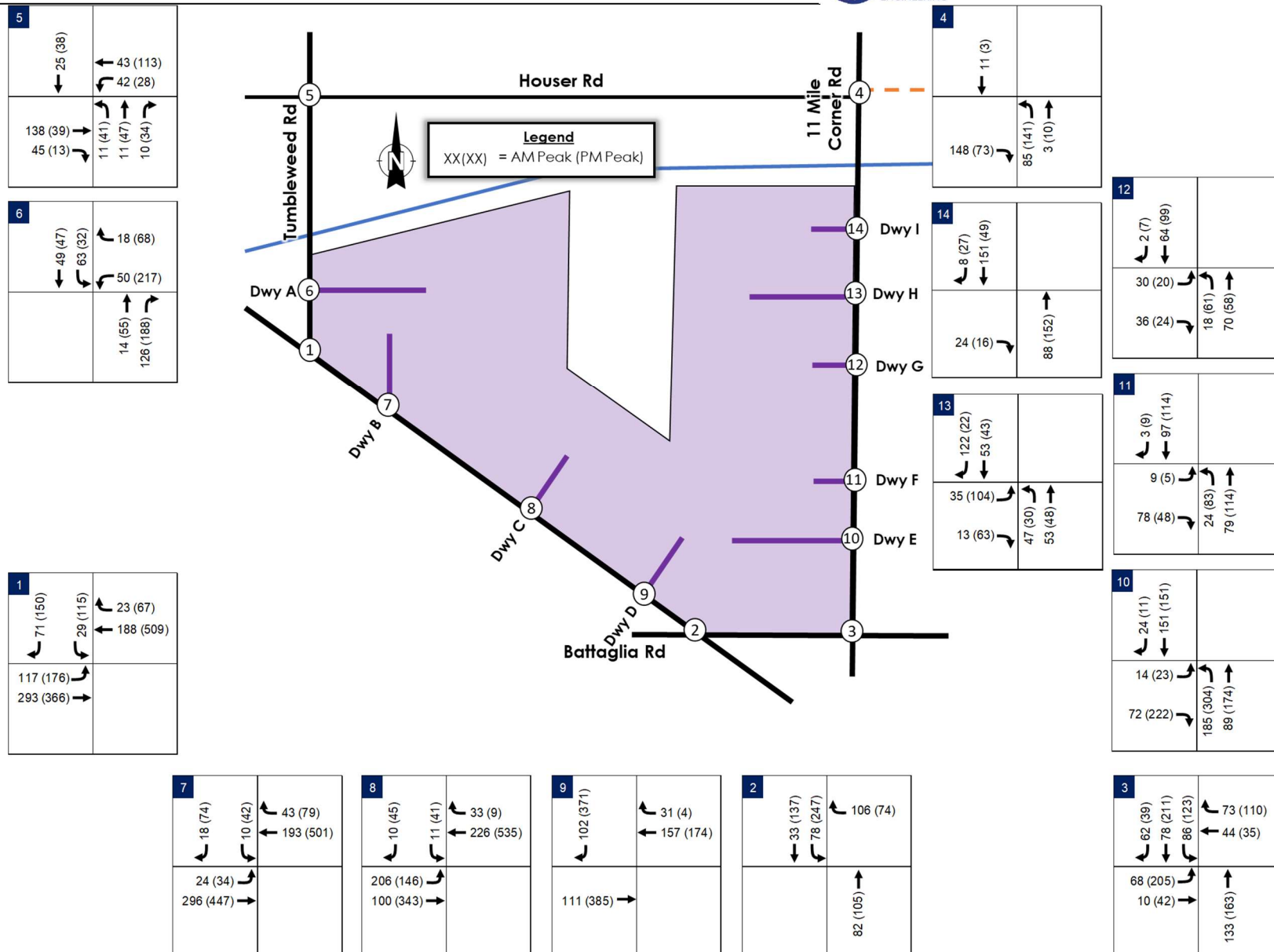


Figure 27: Overall 2035 Assignment

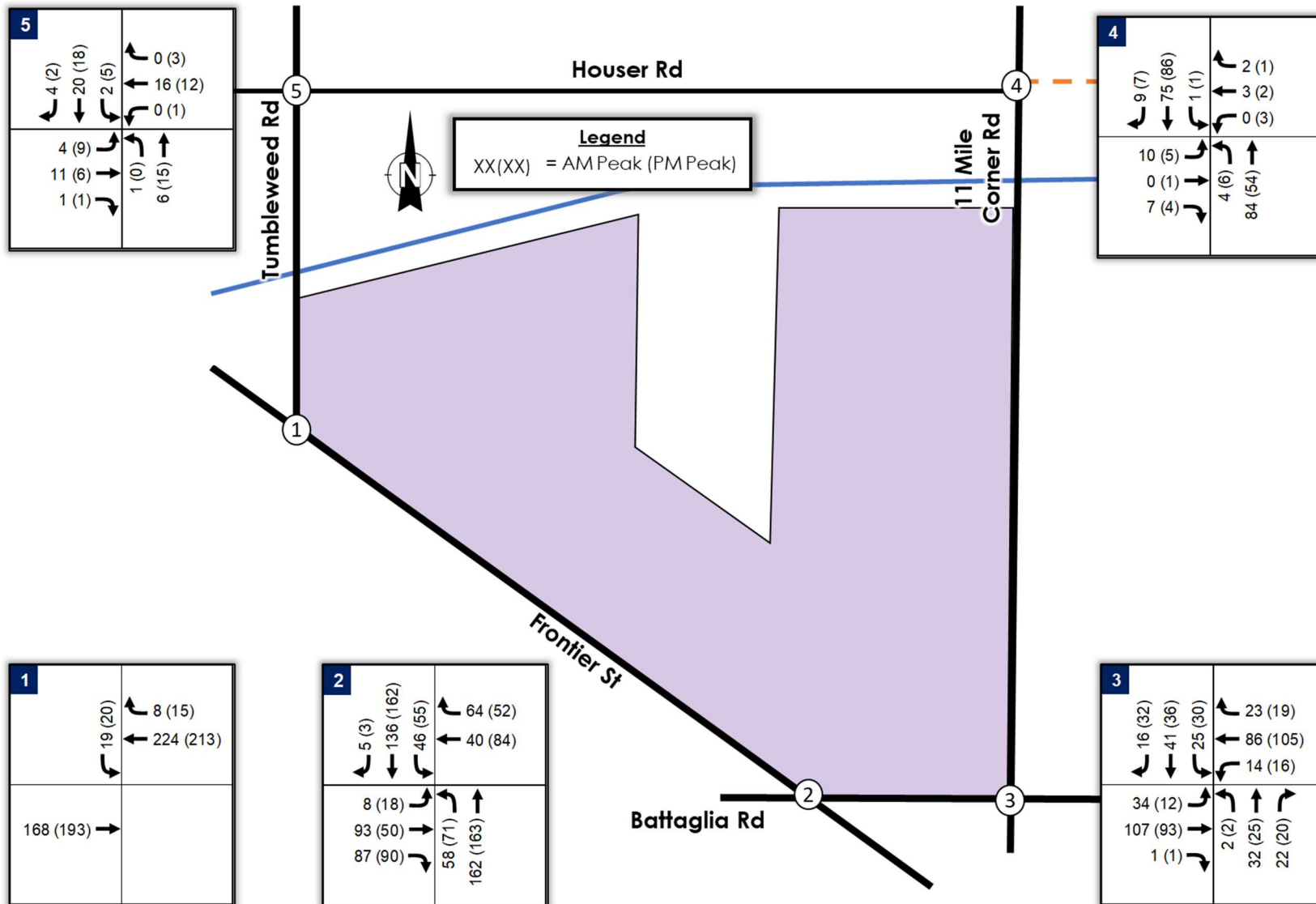


Figure 28: 2025 Background Traffic Volumes

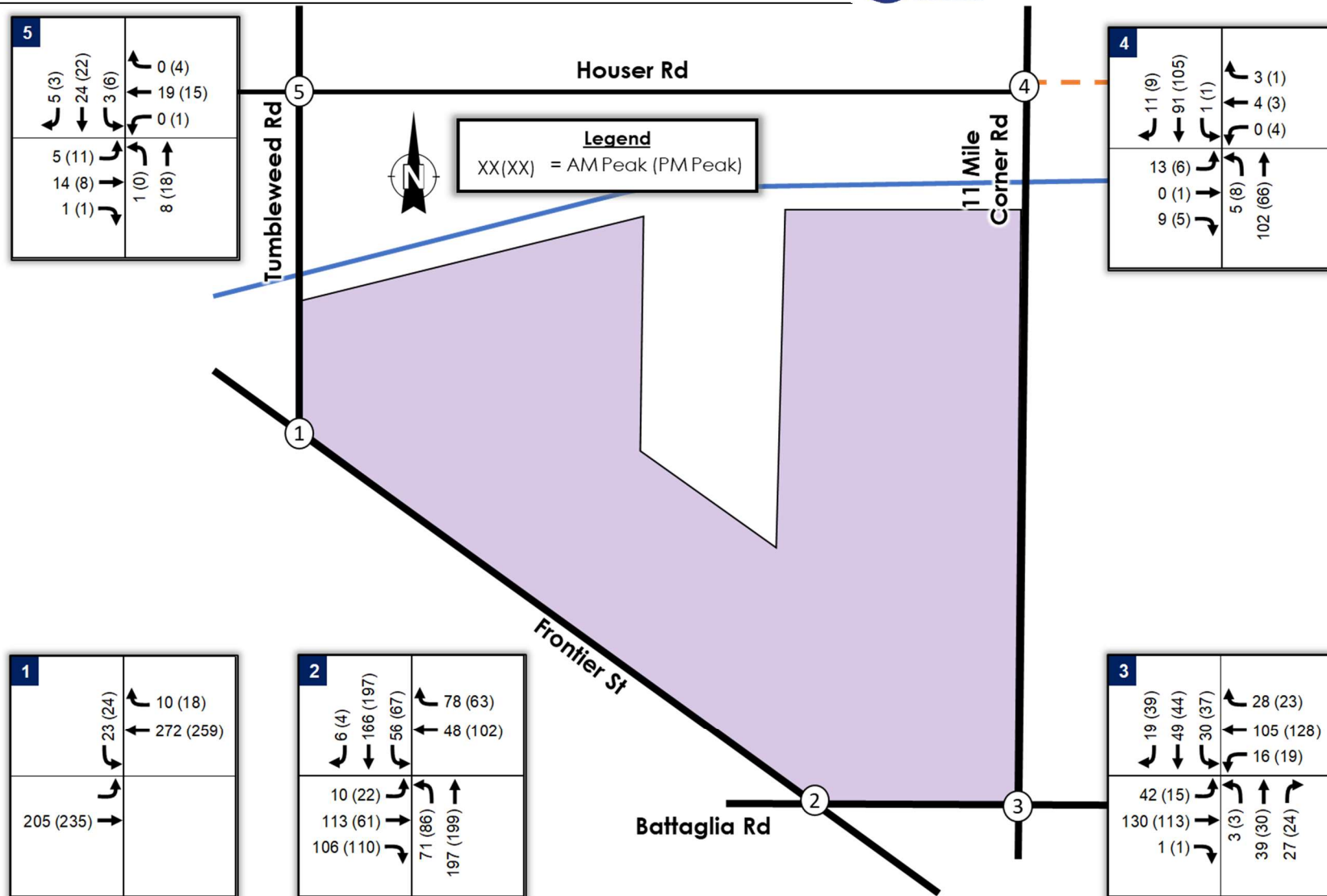


Figure 29: 2030 Background Traffic Volumes

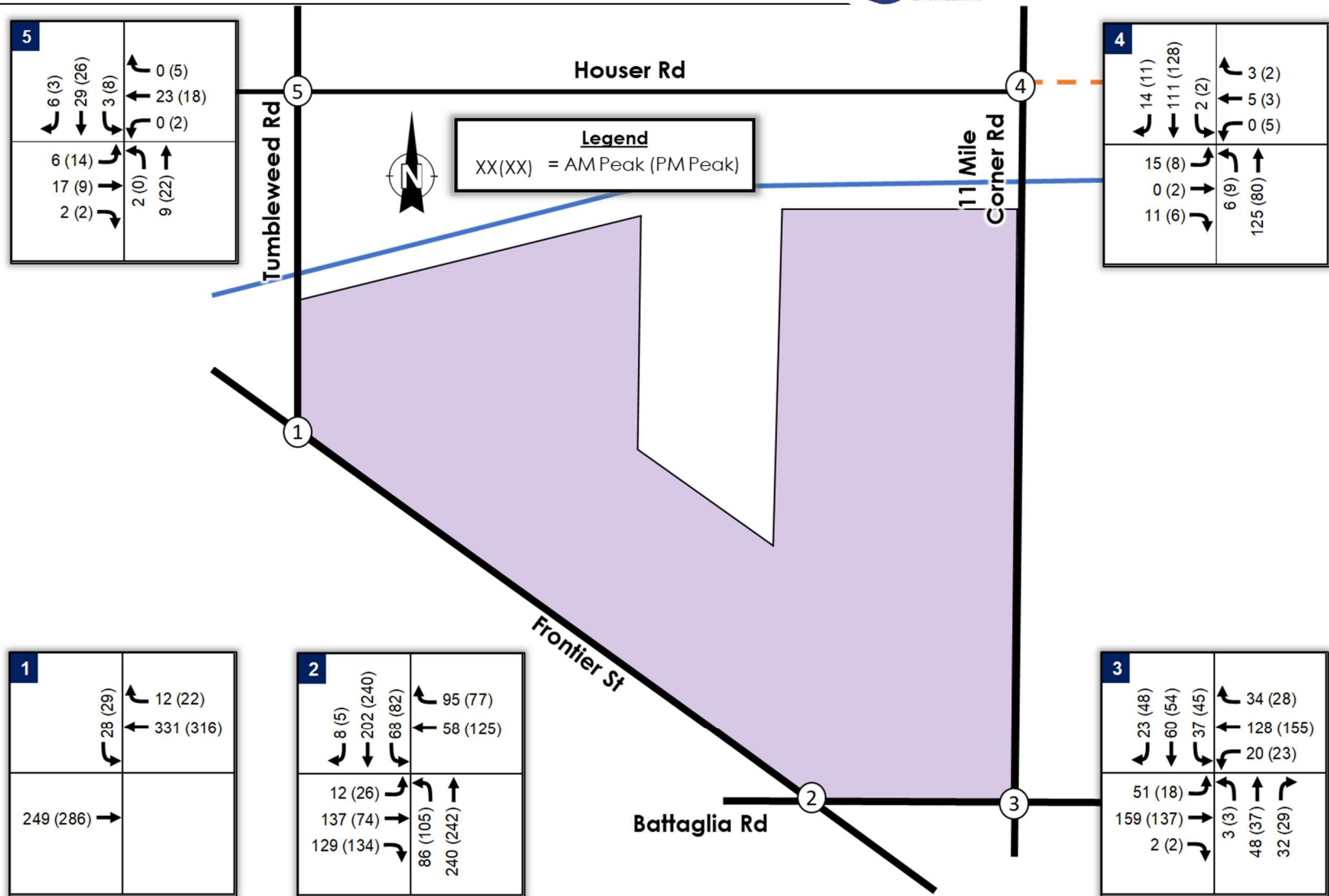


Figure 30: 2035 Background Traffic Volumes

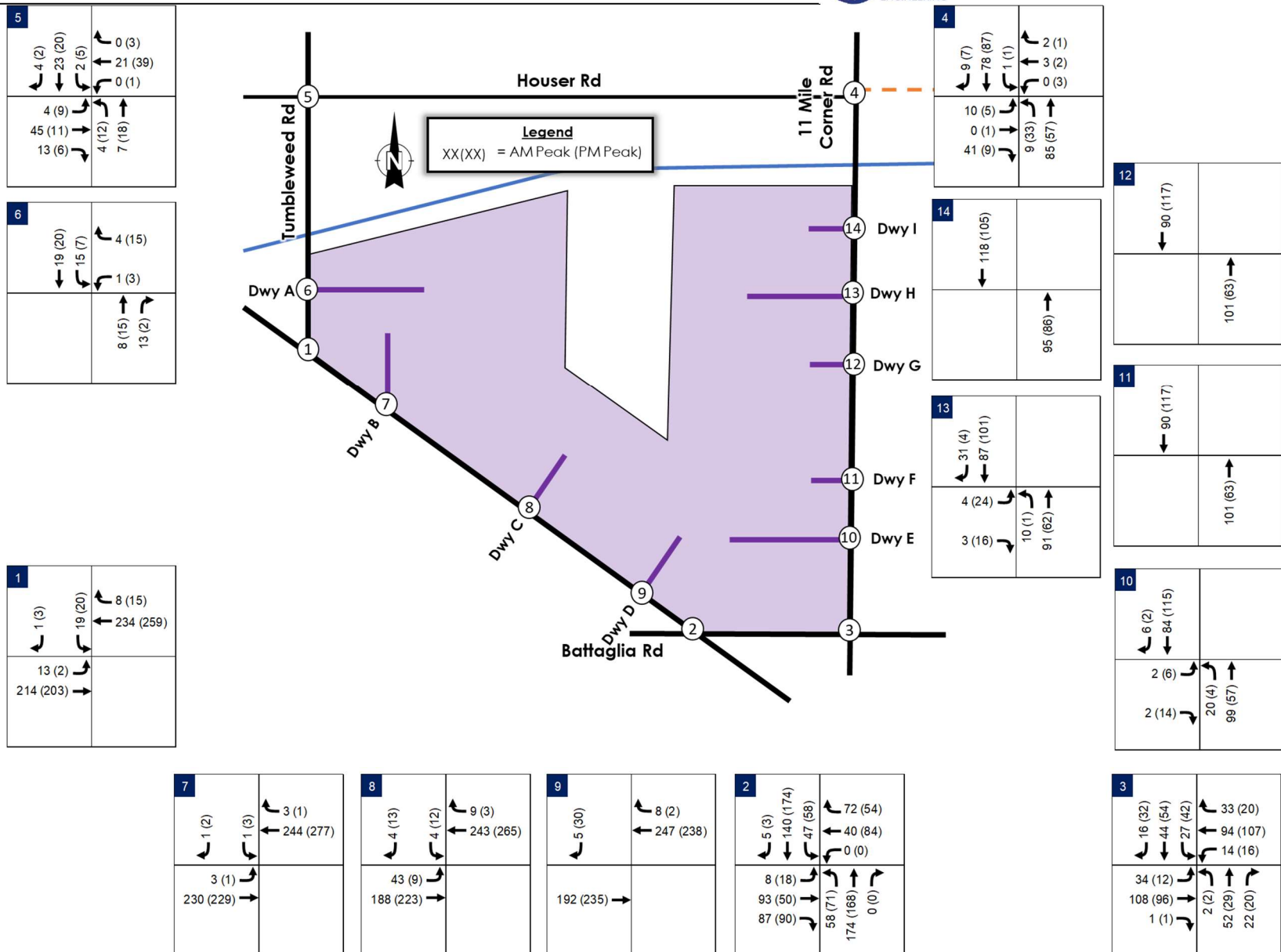


Figure 31: 2025 Total Traffic Volumes

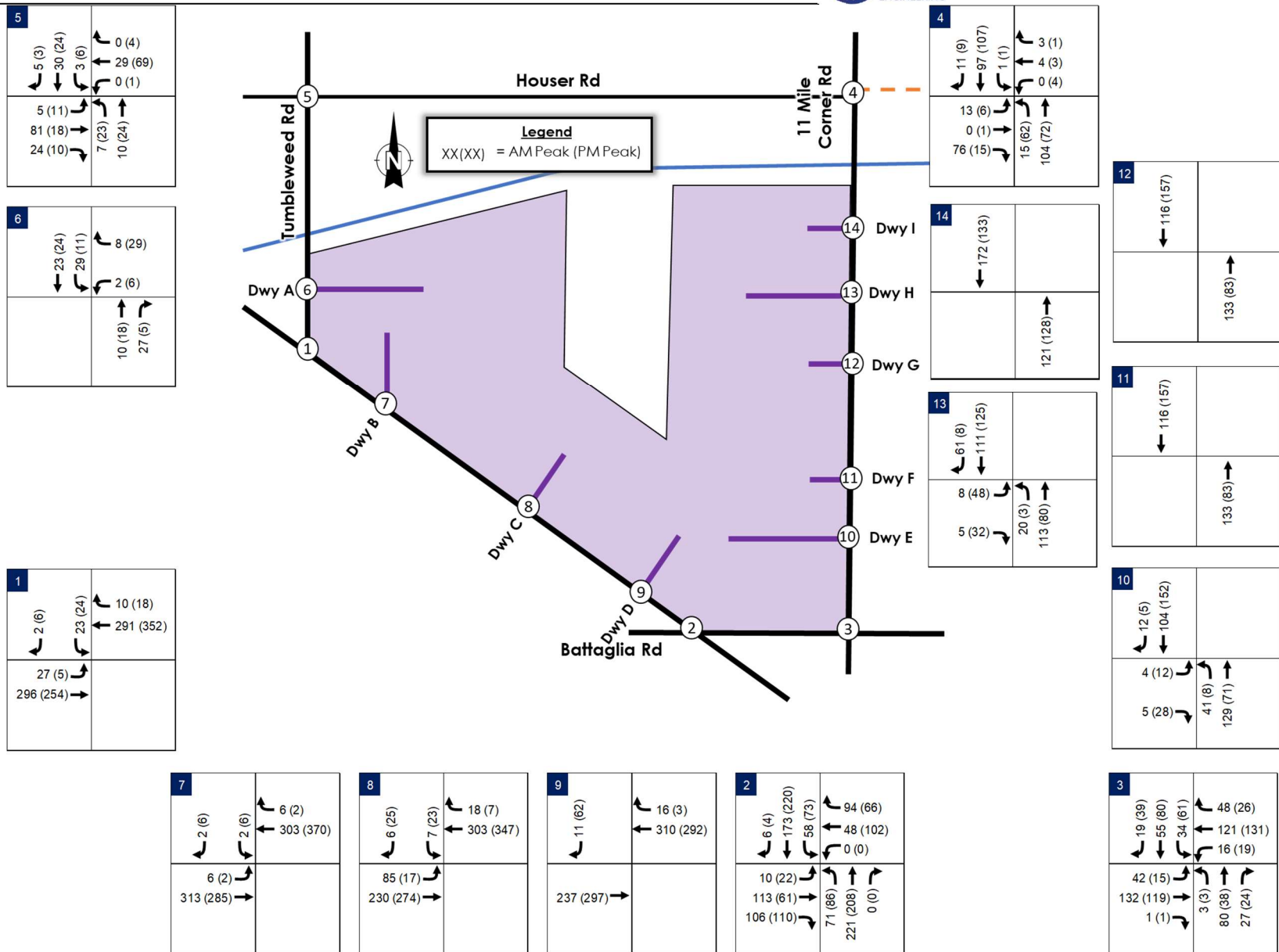


Figure 32: 2030 Total Traffic Volumes

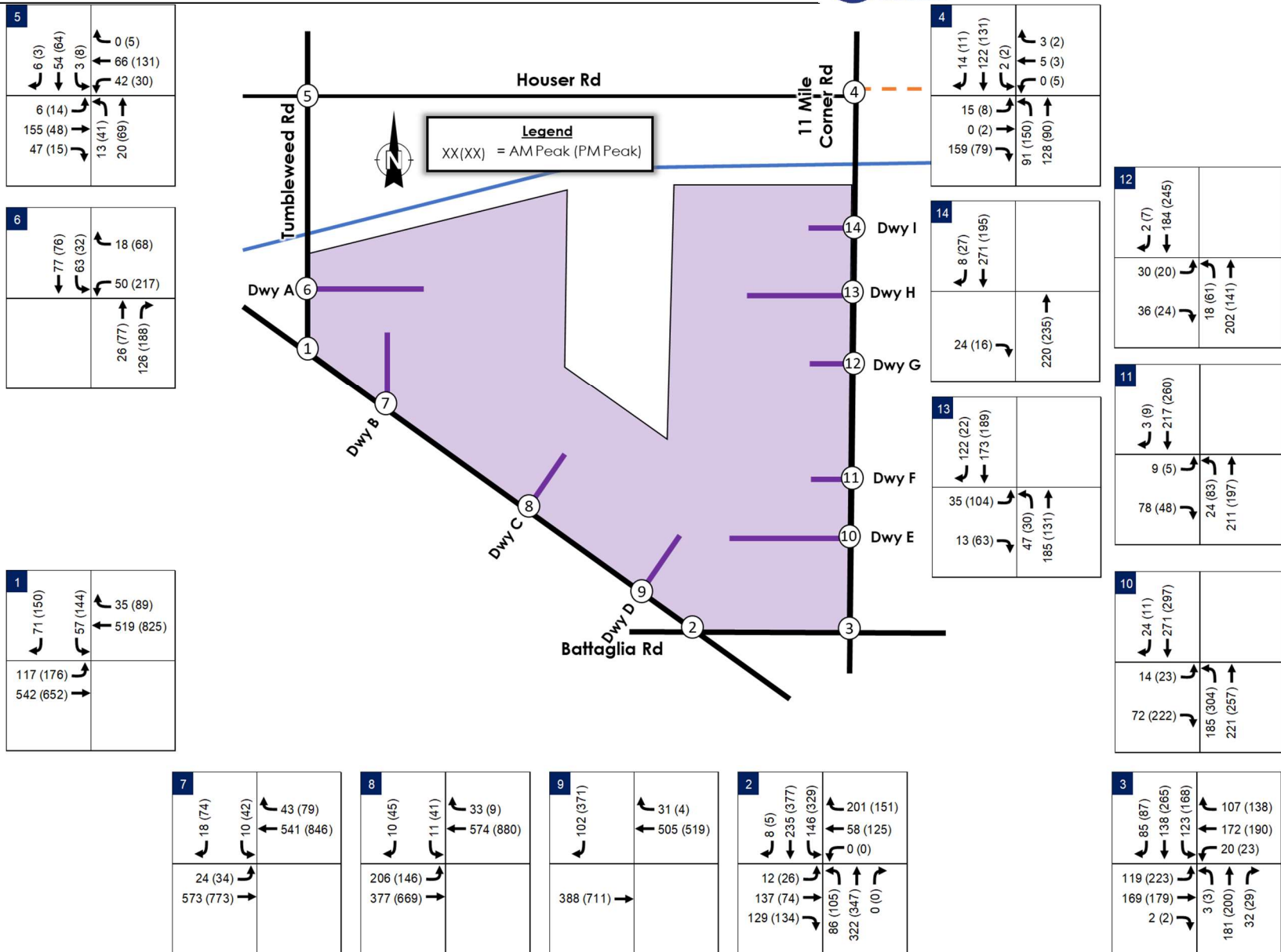


Figure 33: 2035 Total Traffic Volumes

FUTURE TRAFFIC ANALYSES

LEVEL OF SERVICE ANALYSES

Level-of-service (LOS) analyses were prepared for the AM and PM peak hours for the study intersections utilizing Synchro 12 software. Conditions were analyzed for the 2025 opening year, 2030 horizon year, and 2035 horizon year with and without traffic from the proposed TES Eloy development. The level of service criteria, as stated in the *Highway Capacity Manual*, is provided in **Table 3**.

In order to provide an apples-to-apples comparison of intersection delay, the existing roadway conditions were maintained throughout all analysis scenarios. For any intersections that operates at inadequate level of service, the roadway improvements and mitigation recommendations are discussed in the *Mitigation* section of this report.

A summary of the LOS analysis for 2025, 2030, and 2035 are provided in **Table 8**, **Table 9**, and **Table 10**, respectively. The Synchro reports are included in **Appendix F**, **Appendix G**, and **Appendix H** for 2025, 2030, and 2035, respectively.

As seen in **Table 8**, all movements are expected to operate at adequate level of service in the 2025 background and total conditions.

Table 9 shows that all movements at the study intersections are expected to continue operating at adequate LOS in the 2030 background and total conditions, with the exception of the eastbound left/thru/right-turn movement at Frontier Street/Battaglia Road. The movement is projected to operate at LOS E in the PM peak hour with site traffic. The proposed development does not add any traffic to the movement, and the delays are due to large north-south volumes on Frontier Street that do not leave an acceptable number of gaps for the minor-street traffic to turn. The delays are relatively minor for a few peak hours in the afternoon and are not expected to adversely affect the surrounding roadway network.

Table 10 demonstrate that several movements begin to operate at LOS E or F in the 2035 background and/or total conditions. The conservative 4% compounded growth rate, combined with the full buildout of the development, creates large through and turning volumes. The existing roadway lane configurations and traffic control do not provide adequate capacity for the large volumes, generating delays. Options to alleviate the delays are explored in the *Mitigation* section.

Table 8: 2025 Level of Service Analysis

Intersection	Traffic Control	Movement/ Approach	2025 Background Conditions				2025 Total Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Avg Delay (sec/veh)	LOS	Avg Delay (sec/veh)	LOS	Avg Delay (sec/veh)	LOS	Avg Delay (sec/veh)	LOS
1 Tumbleweed Road and Frontier Street	Minor Street Stop Control	EB Left	0.0	A	0.0	A	7.9	A	7.9	A
		SB Left/Right	11.8	B	12.0	B	12.8	B	12.5	B
2 Frontier Street and Battaglia Road	Minor Street Stop Control	EB Left/Thru/Right	17.9	C	18.6	C	18.5	C	19.6	C
		WB Left/Thru/Right	13.1	B	18.6	C	13.3	B	19.3	C
		NB Left	7.7	A	7.8	A	7.7	A	7.8	A
		SB Left	7.7	A	7.7	A	7.8	A	7.8	A
		INTERSECTION	8.8	A	8.6	A	9.0	A	8.9	A
3 11 Mile Corner Road and Battaglia Road	All Way Stop Sign	EB Approach	9.5	A	9.0	A	9.7	A	9.2	A
		EB Left/Thru	9.5	A	9.0	A	9.7	A	9.2	A
		EB Right	7.1	A	7.1	A	7.2	A	7.2	A
		WB Approach	8.6	A	8.8	A	8.9	A	9.0	A
		WB Left/Thru/Right	8.6	A	8.8	A	8.9	A	9.0	A
		NB Approach	8.1	A	7.9	A	8.4	A	8.1	A
		NB Left/Thru/Right	8.1	A	7.9	A	8.4	A	8.1	A
		SB Approach	8.5	A	8.4	A	8.7	A	8.8	A
		SB Left/Thru/Right	8.5	A	8.4	A	8.7	A	8.8	A
4 11 Mile Corner Road and Houser Road	Minor Street Stop Control	EB Left/Thru/Right	9.5	A	9.5	A	9.3	A	9.5	A
		WB Left/Thru/Right	9.7	A	9.7	A	9.8	A	10.2	B
		NB Left	7.4	A	7.4	A	7.4	A	7.5	A
		SB Left	7.4	A	7.3	A	7.4	A	7.3	A
5 Tumbleweed Road and Houser Road	Minor Street Stop Control	EB Left/Thru/Right	9.2	A	9.2	A	9.5	A	9.5	A
		WB Left/Thru/Right	9.4	A	9.2	A	9.5	A	9.8	A
		NB Left	7.3	A	0.0	A	7.3	A	7.3	A
		SB Left	7.2	A	7.3	A	7.2	A	7.3	A
6 Driveway A and Tumbleweed Road	Minor Street Stop Control	WB Left	N/A - Intersection Does Not Exist				8.4	A	8.5	A
		WB Right					7.3	A	7.3	A
		SB Left					0.0	A	0.0	A
7 Driveway B and Frontier Street	Minor Street Stop Control	EB Left	N/A - Intersection Does Not Exist				7.8	A	7.9	A
		SB Left					12.5	B	12.8	B
		SB Right					9.8	A	10.1	B
8 Driveway C and Frontier Street	Minor Street Stop Control	EB Left	N/A - Intersection Does Not Exist				8.0	A	7.9	A
		SB Left					13.4	B	13.1	B
		SB Right					9.9	A	10.1	B
9 Driveway D and Frontier Street	Minor Street Stop Control	SB Right	N/A - Intersection Does Not Exist				9.9	A	10.0	A
10 Driveway E and 11 Mile Corner Road	Minor Street Stop Control	EB Left	N/A - Intersection Does Not Exist				10.1	B	9.7	A
		EB Right					8.8	A	9.0	A
		NB Left					7.5	A	7.5	A
13 Driveway H and 11 Mile Corner Road	Minor Street Stop Control	EB Left	N/A - Intersection Does Not Exist				10.0	A	9.8	A
		EB Right					8.9	A	9.0	A
		NB Left/Thru					7.5	A	7.5	A

Table 9: 2030 Level of Service Analysis

Intersection	Traffic Control	Movement/ Approach	2030 Background Conditions				2030 Total Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Avg Delay (sec/veh)	LOS	Avg Delay (sec/veh)	LOS	Avg Delay (sec/veh)	LOS	Avg Delay (sec/veh)	LOS
1 Tumbleweed Road and Frontier Street	Minor Street Stop Control	EB Left	0.0	A	0.0	A	8.0	A	8.2	A
		SB Left/Right	12.9	B	13.2	B	15.1	C	14.2	B
2 Frontier Street and Battaglia Road	Minor Street Stop Control	EB Left/Thru/Right	28.0	D	33.1	D	31.4	D	41.2	E
		WB Left/Thru/Right	15.5	C	27.1	D	16.1	C	30.6	D
		NB Left	7.8	A	7.9	A	7.8	A	8.0	A
		SB Left	7.8	A	7.9	A	7.9	A	7.9	A
		INTERSECTION	9.4	A	9.2	A	10.0	A	9.8	A
3 11 Mile Corner Road and Battaglia Road	All Way Stop Sign	EB Approach	10.3	B	9.5	A	10.8	B	10.1	B
		EB Left/Thru	10.3	B	9.5	A	10.8	B	10.1	B
		EB Right	7.2	A	7.3	A	7.5	A	7.5	A
		WB Approach	9.2	A	9.4	A	9.9	A	9.9	A
		WB Left/Thru/Right	9.2	A	9.4	A	9.9	A	9.9	A
		NB Approach	8.5	A	8.3	A	9.3	A	8.7	A
		NB Left/Thru/Right	8.5	A	8.3	A	9.3	A	8.7	A
		SB Approach	8.9	A	8.9	A	9.4	A	10.0	A
		SB Left/Thru/Right	8.9	A	8.9	A	9.4	A	10.0	A
4 11 Mile Corner Road and Houser Road	Minor Street Stop Control	EB Left/Thru/Right	9.8	A	9.7	A	9.7	A	9.9	A
		WB Left/Thru/Right	9.9	A	10.1	B	10.1	B	11.4	B
		NB Left	7.5	A	7.5	A	7.5	A	7.6	A
		SB Left	7.5	A	7.4	A	7.5	A	7.4	A
5 Tumbleweed Road and Houser Road	Minor Street Stop Control	EB Left/Thru/Right	9.3	A	9.3	A	10.0	A	9.9	A
		WB Left/Thru/Right	9.5	A	9.3	A	9.7	A	10.5	B
		NB Left	7.3	A	0.0	A	7.3	A	7.3	A
		SB Left	7.2	A	7.3	A	7.2	A	7.3	A
6 Driveway A and Tumbleweed Road	Minor Street Stop Control	WB Left	N/A - Intersection Does Not Exist				8.5	A	8.6	A
		WB Right					7.4	A	7.3	A
		SB Left					0.0	A	0.0	A
7 Driveway B and Frontier Street	Minor Street Stop Control	EB Left	N/A - Intersection Does Not Exist				8.0	A	8.1	A
		SB Left					14.0	B	14.7	B
		SB Right					10.1	B	10.7	B
8 Driveway C and Frontier Street	Minor Street Stop Control	EB Left	N/A - Intersection Does Not Exist				8.3	A	8.1	A
		SB Left					16.4	C	15.5	C
		SB Right					10.2	B	10.7	B
9 Driveway D and Frontier Street	Minor Street Stop Control	SB Right	N/A - Intersection Does Not Exist				10.3	B	10.8	B
10 Driveway E and 11 Mile Corner Road	Minor Street Stop Control	EB Left	N/A - Intersection Does Not Exist				11.1	B	10.3	B
		EB Right					8.9	A	9.4	A
13 Driveway H and 11 Mile Corner Road	Minor Street Stop Control	EB Left	N/A - Intersection Does Not Exist				10.7	B	10.3	B
		EB Right					9.1	A	9.2	A
		NB Left/Thru					7.7	A	7.5	A

Table 10: 2035 Level of Service Analysis

Intersection	Traffic Control	Movement/ Approach	2035 Background Conditions				2035 Total Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Avg Delay (sec/veh)	LOS	Avg Delay (sec/veh)	LOS	Avg Delay (sec/veh)	LOS	Avg Delay (sec/veh)	LOS
1 Tumbleweed Road and Frontier Street	Minor Street Stop Control	EB Left	0.0	A	0.0	A	9.4	A	12.6	B
		SB Left/Right	14.3	B	14.7	B	58.2	F	1870.6	F
2 Frontier Street and Battaglia Road	Minor Street Stop Control	EB Left/Thru/Right	76.0	F	235.7	F	320.8	F	>100*	F
		WB Left/Thru/Right	20.1	C	63.7	F	>100*	F	>100*	F
		NB Left	8.0	A	8.1	A	8.1	A	8.6	A
		SB Left	8.0	A	8.0	A	8.5	A	9.5	A
		INTERSECTION	10.3	B	10.0	A	29.0	D	128.3	F
3 11 Mile Corner Road and Battaglia Road	All Way Stop Sign	EB Approach	11.5	B	10.4	B	33.2	D	125.2	F
		EB Left/Thru	11.5	B	10.4	B	33.4	D	125.8	F
		EB Right	7.4	A	7.5	A	10.0	A	12.1	B
		WB Approach	10.0	A	10.3	B	26.4	D	68.3	F
		WB Left/Thru/Right	10.0	A	10.3	B	26.4	D	68.3	F
		NB Approach	9.0	A	8.8	A	20.4	C	37.3	E
		NB Left/Thru/Right	9.0	A	8.8	A	20.4	C	37.3	E
		SB Approach	9.6	A	9.6	A	33.3	D	214.4	F
		SB Left/Thru/Right	9.6	A	9.6	A	33.3	D	214.4	F
		INTERSECTION	10.3	B	10.0	A	29.0	D	128.3	F
4 11 Mile Corner Road and Houser Road	Minor Street Stop Control	EB Left/Thru/Right	10.2	B	10.1	B	10.9	B	10.6	B
		WB Left/Thru/Right	10.3	B	10.3	B	12.0	B	15.1	C
		NB Left	7.5	A	7.6	A	7.7	A	7.9	A
		SB Left	7.5	A	7.4	A	7.5	A	7.4	A
5 Tumbleweed Road and Houser Road	Minor Street Stop Control	EB Left/Thru/Right	9.4	A	9.4	A	11.7	B	12.3	B
		WB Left/Thru/Right	9.6	A	9.4	A	12.2	B	14.2	B
		NB Left	7.3	A	0.0	A	7.4	A	7.5	A
		SB Left	7.2	A	7.3	A	7.3	A	7.5	A
6 Driveway A and Tumbleweed Road	Minor Street Stop Control	WB Left	N/A - Intersection Does Not Exist				8.9	A	9.8	A
		WB Right					7.7	A	8.0	A
		SB Left					0.0	A	0.0	A
7 Driveway B and Frontier Street	Minor Street Stop Control	EB Left	N/A - Intersection Does Not Exist				9.0	A	10.6	B
		SB Left					28.4	D	160.0	F
		SB Right					12.8	B	22.1	C
8 Driveway C and Frontier Street	Minor Street Stop Control	EB Left	N/A - Intersection Does Not Exist				10.2	B	11.7	B
		SB Left					54.3	F	449.7	F
		SB Right					13.0	B	19.7	C
9 Driveway D and Frontier Street	Minor Street Stop Control	SB Right	N/A - Intersection Does Not Exist				14.1	B	34.4	D
10 Driveway E and 11 Mile Corner Road	Minor Street Stop Control	EB Left	N/A - Intersection Does Not Exist				22.8	C	44.6	E
		EB Right					10.8	B	13.1	B
		NB Left					8.6	A	9.1	A
11 Driveway F and 11 Mile Corner Road	Minor Street Stop Control	EB Left	N/A - Intersection Does Not Exist				12.7	B	15.5	C
		EB Right					10.2	B	10.4	B
		NB Left/Thru					7.8	A	8.1	A

* Delay was not reported in the Synchro printouts. Due to high volumes, the delays are assumed to be well over 100 seconds.

2035 Level of Service Analysis Continued

Intersection	Traffic Control	Movement/ Approach	2035 Background Conditions				2035 Total Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Avg Delay (sec/veh)	LOS	Avg Delay (sec/veh)	LOS	Avg Delay (sec/veh)	LOS	Avg Delay (sec/veh)	LOS
12 Driveway G and 11 Mile Corner Road	Minor Street Stop Control	EB Left	N/A - Intersection Does Not Exist				12.4	B	13.8	B
		EB Right					9.6	A	10.0	A
		NB Left/Thru					7.7	A	8.0	A
13 Driveway H and 11 Mile Corner Road	Minor Street Stop Control	EB Left	N/A - Intersection Does Not Exist				14.1	B	13.5	B
		EB Right					9.8	A	10.0	A
		NB Left/Thru					8.1	A	7.8	A
14 Driveway I and 11 Mile Corner	Minor Street Stop Control	EB Right	N/A - Intersection Does Not Exist				10.2	B	9.7	A

AUXILIARY LANES AND QUEUE ANALYSIS

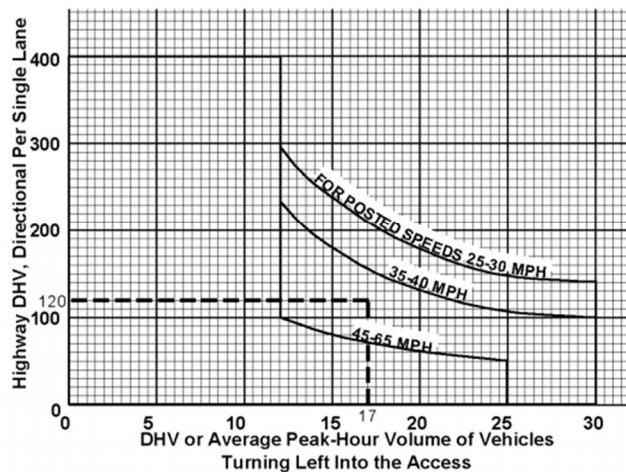
The primary factors that determine the need for an exclusive left turn or right-turn deceleration lanes include the combination of through traffic volumes, turning traffic volumes, and the posted roadway speed. Left turn and right-turn lane warrant criteria for the site access points are provided by Pinal County in the Traffic Impact Assessment Guidelines & Procedures, as shown in **Figure 34**. Turn lanes criteria at arterial intersections are described in the Pinal County Subdivision & Infrastructure Design Manual:

“6.17.1 Right turn lanes shall be provided on arterial streets at all street intersections, and where warranted per the Traffic Impact Analysis.”

“6.17.7 Deceleration lanes are required as determined by the approved Traffic Impact Analysis. In addition, deceleration lanes are required when both of the following factors are determined to apply:

- The 85th percentile traffic speed on the street is at least 35 mph or 45 mph for a two lane roadway.
- At least 20 vehicles will be making right turns into the access way and 100 vehicle directional traffic in a one-hour period.”

LEFT TURN LANE WARRANT



RIGHT TURN LANE WARRANT

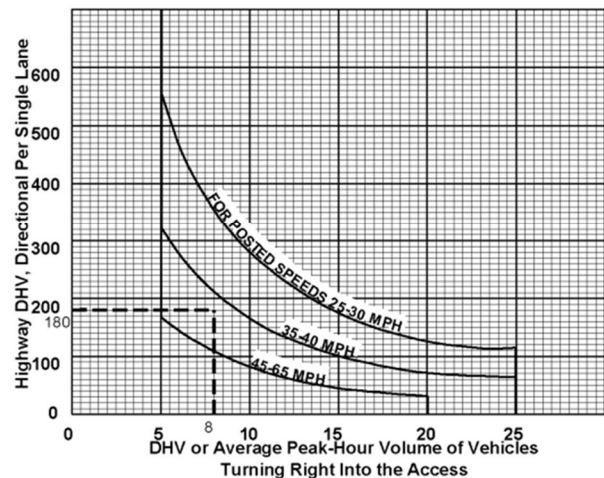


Figure 34: Pinal County Left-Turn and Right-Turn Warrant Criteria

Based on the combination of turning volumes, directional or opposing through volumes, and the roadway speed, left- and right-turn lanes are projected to be warranted at all site driveways.

While not along project frontage, there appears to be sufficient width on the westbound approach to Battaglia Road/11 Mile Corner Road to stripe a left-turn lane and shared through/right-turn lane. This will help the left-turn movements align with the warranted left-turn lane on the eastbound approach.

The ultimate turn lane storage needs were evaluated using 2035 total traffic volumes. The results of the queue storage evaluation are provided in **Table 11**. AASHTO guidance recommends that turn lanes at unsignalized intersections accommodate the number of vehicles likely to arrive in a 2-minute period. AASHTO guidance recommends that turn lanes at signalized intersections accommodate one to two times the number of vehicles expected to arrive in a cycle length. In this methodology, a vehicle length of 25 feet is assumed, and the resulted storage lengths are rounded to the nearest 25 feet. It should be noted that the AASHTO method overestimates the storage length needed for right-turn movements as it does not consider the effect of right-turns on red on the queue estimation. Additionally, for turn lanes resulting in an AASHTO queue length of less than 100 feet, a minimum recommended storage length of 100 feet was applied.

As shown in **Table 11**, the results of the queue storage analysis indicate that the existing 225-foot southbound left-turn lane at Frontier Street/Battaglia Road is not expected to provide sufficient storage space for the projected 2035 total traffic volumes. It is advised to restripe the lane with 275 feet of storage; alternatively, vehicles can queue within the taper area upstream of the turn lane without impacting the through volumes on Frontier Street. The warranted westbound right-turn lane is recommended to provide 175 feet of storage.

All left- and/or right-turn lanes at 11 Mile Corner Road/Battaglia Road and Driveways A through H are expected to need 275 feet of storage or less, with many only needing 100 feet of storage.

Table 11: Queue Storage (2035 Total Volumes)

Intersection	Traffic Control	Movement	AM/PM Volume (vph)	Queue Storage (ft)		
				AASHTO	Existing	Recommended
1 Tumbleweed Road and Frontier Street	Minor Street Stop Control	SB Left	57 / 144	125	-	125
		EB Left	117 / 176	150	200	150
		SB Right	71 / 150	125	-	125
		WB Right	35 / 89	75	-	100
2 Frontier Street and Battaglia Road	Minor Street Stop Control	SB Left	146 / 329	275	225	275
		WB Right	201 / 151	175	-	175
3 11 Mile Corner Road and Battaglia Road	All Way Stop Sign	SB Left	123 / 168	150	-	150
		EB Left	119 / 223	200	150	200
		WB Left	20 / 23	25	-	100
		SB Right	85 / 87	75	-	100
		EB Right	2 / 2	25	-	100
6 Driveway A and Tumbleweed Road	Minor Street Stop Control	SB Left	63 / 32	75	N/A	100
		NB Right	126 / 188	175		175
7 Driveway B and Frontier Street	Minor Street Stop Control	EB Left	24 / 34	50	N/A	100
		WB Right	43 / 79	75		100
8 Driveway C and Frontier Street	Minor Street Stop Control	EB Left	206 / 146	175	N/A	175
		WB Right	33 / 9	50		100
9 Driveway D and Frontier Street	Minor Street Stop Control	WB Right	31 / 4	50	N/A	100
10 Driveway E and 11 Mile Corner Road	Minor Street Stop Control	NB Left	185 / 304	275	N/A	275
		SB Right	24 / 11	25		100
11 Driveway F and 11 Mile Corner Road	Minor Street Stop Control	NB Left	24 / 83	75	N/A	100
		SB Right	3 / 9	25		100
12 Driveway G and 11 Mile Corner Road	Minor Street Stop Control	NB Left	18 / 61	75	N/A	100
		SB Right	2 / 7	25		100
13 Driveway H and 11 Mile Corner Road	Minor Street Stop Control	NB Left	47 / 30	50	N/A	100
		SB Right	122 / 22	125		125
14 Driveway I and 11 Mile Corner Road	Minor Street Stop Control	SB Right	8 / 27	25	N/A	100

MITIGATION

Several movements are expected to operate at inadequate level of service in the 2035 background and total conditions. Mitigation options were explored to determine feasible improvements to improve delays.

The southbound left-/right-turn lane at the intersection of Tumbleweed Road/Frontier Street is expected to operate at LOS F in the AM and PM 2035 total conditions. Widening Frontier Street to provide two eastbound and two westbound is not expected to alleviate the delays with minor street STOP control. The installation of a traffic signal would be expected to alleviate the delays by providing adequate green time to serve the turning movements. A single east-west through lane on Frontier Street and dedicated left- and right-turn lanes are recommended at the intersection to provide adequate capacity for projected volumes in 2035 and maintain adjacent street connectivity. It is recommended to monitor traffic volumes as development progresses in the area and conduct a traffic signal warrant analysis as the volumes become observed.

The eastbound and westbound approaches at the intersection of Frontier Street/Battaglia Road are projected to operate at LOS F in the background and total 2035 conditions. Widening the approaches to provide dedicated turn lanes and widening Frontier Street to provide two lanes in each direction – while maintaining minor street STOP control – are not expected to mitigate the delays. Instead, providing a traffic signal is expected to alleviate the delays. As the site adds a large volume of westbound right-turns at the intersection, a dedicated right-turn lane is recommended to be constructed along project frontage. The site is not projected to add traffic to the eastbound approach, and is therefore not recommended to provide improvements outside of project frontage. Due to the shared lanes on the eastbound and westbound approaches, split phasing is recommended. It is advised to monitor traffic volumes at the intersection as growth continues, conduct traffic signal warrants when a more refined site plan is available.

Movements on all four approaches at the intersection of 11 Mile Corner Road/Battaglia Road are projected to operate at LOS E or F in the PM peak hour with site traffic. Providing dedicated turn lanes was not able to alleviate the delays, therefore, a traffic signal may be necessary to fully alleviate delays. The delays were heavily driven by the volumes generated by the eastern commercial site. Due to this, it is advised to monitor traffic volumes as the commercial parcel becomes developed, and install a signal if or when warrants are satisfied.

Inadequate LOS is anticipated for the southbound left-turn movements at the intersections of Driveway B/Frontier Street and Driveway C/Frontier Street in the 2035 total PM conditions. Widening Frontier Street to provide two eastbound and two westbound through lanes (consistent with what is provided on Frontier Street further southeast in the central Eloy area) as well as providing dedicated eastbound left-turn and westbound right-turn lanes would be expected provide more capacity and alleviate some of the delays at Driveway B and Driveway C. Delays at Driveway B are expected to lessen to LOS E in the peak hour with only 36 seconds of delay – one second more than desirable levels. However, the delays at Driveway C are anticipated to remain relatively high even with the widening and capacity improvements; therefore, it is advised to install a staging area in the central median on Frontier Street to allow the southbound left-turn vehicles to conduct the movement in two phases. This staging area would be projected to allow all movements at the intersection to operate at adequate LOS.

While the eastbound left-turn movement at Driveway E/11 Mile Corner Road is projected to operate at LOS E in the PM peak hour, this delay is relatively minor at 44.6 seconds and is not anticipated to cause adverse effects to the roadway system. Additionally, if a traffic signal is installed at the intersection of Battaglia Road/11 Mile Corner Road, the traffic signal will create platoons of vehicles with the signal timing and will

therefore create gaps on the main road that the minor-street vehicles can utilize to turn; this is projected to lessen the delays down to 40.5 seconds.

In 2030 interim conditions, the eastbound left-/thru/right-turn movement at Frontier Street/Battaglia Road is projected to operate at LOS E in the total PM peak hour. The delay is relatively minor and is not expected to affect the main roadway, Frontier Street. Mitigation options are not recommended to alleviate one movement for a few peak hours of the day in 2030, as the 2035 improvements will significantly improve the delays.

All other movements at the study intersections are projected to operate at adequate LOS (D or above). Further improvements are not anticipated to be necessary from a delay-perspective, but might still be recommended based on turn lane warrants or to separate turning traffic from through traffic to potentially reduce the possibility of rear-end collisions.

ADDITIONAL IMPROVEMENTS

STOP signs are recommended on the exiting approaches at all site driveways. A staging area is recommended for southbound left-turn vehicles at Driveway C/Frontier Street to allow vehicles to complete the maneuver in two phases. The ultimate lane configuration of Frontier Street is two lanes in each direction separated by a median; to help alleviate delays at the minor street driveways and serve the projected volumes on Frontier Street, it is advised to construct the ultimate lane configuration at full buildout of the TES Eloy development. Single through lanes are advised near Tumbleweed Road and Battaglia Road to maintain connectivity and alignment outside the project limits.

A traffic signal is recommended at the intersection of Tumbleweed Road/Frontier Street, Frontier Street/Battaglia Road, and Battaglia Road/11 Mile Corner Road to alleviate the heavy delays. It is recommended to re-evaluate the need for traffic signals once a more refined site plan becomes available. The traffic signals should be installed when warranted by observed traffic volumes. Split phasing is recommended for Frontier Street/Battaglia Road due to the shared lanes on the eastbound and westbound approaches. Split phasing may also be necessary on the northbound/southbound approaches at Battaglia Road/11 Mile Corner Road due to the shared lane on the northbound approach.

Recommended improvements for the full buildout of the site are shown in **Figure 35**. Interim improvements are not recommended due to the low projected volumes in 2025 and 2030.

The turn lane queues were re-evaluated with the change from unsignalized to signalized operations at Tumbleweed Road/Frontier Street and Frontier Street/Battaglia Road, as shown in **Table 12**.

The mitigated level of service analysis is shown in **Table 13** with Synchro reports provided in **Appendix I**.

Table 12: Queue Storage with Signalized Traffic Control

Intersection	Traffic Control	Movement	AM/PM Volume (vph)	Queue Storage (ft)		
				AASHTO	Existing	Recommended
1 Tumbleweed Road and Frontier Street	Traffic Signal	SB Left	57 / 144	150	-	150
		EB Left	117 / 176	175	200	175
		SB Right	71 / 150	150	-	150
		WB Right	35 / 89	100	-	100
2 Frontier Street and Battaglia Road	Traffic Signal	SB Left	146 / 329	325	225	325
		WB Right	201 / 151	200	-	200
3 11 Mile Corner Road and Battaglia Road	Traffic Signal	SB Left	123 / 168	175	-	175
		EB Left	119 / 223	225	150	225
		SB Right	85 / 87	100	-	100
		EB Right	2 / 2	25	-	100

Table 13: 2035 Level of Service Analysis – With Mitigation

Intersection	Traffic Control	Movement/ Approach	2035 Total Conditions Without Mitigation				2035 Total Conditions With Mitigation			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Avg Delay (sec/veh)	LOS	Avg Delay (sec/veh)	LOS	Avg Delay (sec/veh)	LOS	Avg Delay (sec/veh)	LOS
1 Tumbleweed Road and Frontier Street	Minor Street Stop Control to Traffic Signal	EB Approach					24.4	C	27.1	C
		EB Left	9.4	A	12.6	B	20.0	B	17.4	B
		EB Thru	N/A - No Delay				22.1	C	42.8	D
		WB Approach					19.5	B	10.1	B
		WB Thru	N/A - No Delay				31.8	C	34.8	C
		WB Right					32.6	C	37.3	D
		SB Approach		A		A	19.3	B	11.2	B
		SB Left/Right	58.2	F	1870.6	F	15.7	B	30.5	C
		SB Left	N/A - Movement Does Not Exist				N/A - Movement Does Not Exist			
		SB Right	N/A - Movement Does Not Exist				15.5	B	29.7	C
							15.9	B	31.2	C
2 Frontier Street and Battaglia Road	Minor Street Stop Control to Traffic Signal	EB Approach					34.7	C	32.2	C
		EB Left/Thru/Right	320.8	F	>100*	F	54.1	D	52.2	D
		WB Approach					54.1	D	52.2	D
		WB Left/Thru/Right	>100*	F	>100*	F	45.1	D	43.8	D
		WB Left/Thru	N/A - Movement Does Not Exist				N/A - Movement Does Not Exist			
		WB Right	N/A - Movement Does Not Exist				32.2	C	41.2	D
		NB Approach					48.8	D	46.0	D
		NB Left	8.1	A	8.6	A	26.7	C	27.3	C
		NB Thru/Right	N/A - No Delay				18.7	B	18.8	B
		SB Approach					28.9	C	30.1	C
		SB Left	8.5	A	9.5	A	21.9	C	23.7	C
		SB Thru/Right	N/A - No Delay				19.0	B	24.1	C
							23.7	C	23.3	C

Note: Mitigation results reflect the installation of a traffic signal; additional analysis is required to confirm a traffic signal is warranted.

2035 Level of Service Analysis – With Mitigation Continued

Intersection	Traffic Control	Movement/ Approach	2035 Total Conditions Without Mitigation				2035 Total Conditions With Mitigation			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Avg Delay (sec/veh)	LOS	Avg Delay (sec/veh)	LOS	Avg Delay (sec/veh)	LOS	Avg Delay (sec/veh)	LOS
3 11 Mile Corner Road and Battaglia Road	All Way Stop Sign to Traffic Signal	INTERSECTION	29.0	D	128.3	F	34.4	C	40.3	D
		EB Approach	33.2	D	125.2	F	29.7	C	35.8	D
		EB Left	N/A - Movement Does Not Exist				28.2	C	42.1	D
		EB Thru	N/A - Movement Does Not Exist				30.8	C	28.7	C
		EB Left/Thru	33.4	D	125.8	F	N/A - Movement Does Not Exist			
		EB Right	10.0	A	12.1	B	26.7	C	24.0	C
		WB Approach	26.4	D	68.3	F	46.7	D	50.7	D
		WB Left	N/A - Movement Does Not Exist				29.1	C	27.1	C
		WB Left/Thru/Right	26.4	D	68.3	F	N/A - Movement Does Not Exist			
		WB Thru/Right	N/A - Movement Does Not Exist				47.9	D	52.4	D
		NB Approach	20.4	C	37.3	E	29.7	C	38.4	D
		NB Left/Thru/Right	20.4	C	37.3	E	29.7	C	38.4	D
		SB Approach	33.3	D	214.4	F	31.2	C	38.1	D
		SB Left	N/A - Movement Does Not Exist				31.3	C	34.3	C
		SB Left/Thru/Right	33.3	D	214.4	F	N/A - Movement Does Not Exist			
		SB Thru	N/A - Movement Does Not Exist				31.6	C	42.8	D
		SB Right	N/A - Movement Does Not Exist				30.3	C	30.6	C
7 Driveway B and Frontier Street	Minor Street Stop Control	EB Left/Thru	9.1	A	10.6	B	N/A - Movement Does Not Exist			
		EB Left	N/A - Movement Does Not Exist				9.0	A	10.7	B
		SB Left	28.4	D	160.0	F	16.1	C	36.0	E
		SB Right	12.8	B	22.1	C	10.3	B	13.0	B
8 Driveway C and Frontier Street	Minor Street Stop Control	EB Left/Thru	10.2	B	11.7	B	N/A - Movement Does Not Exist			
		EB Left	N/A - Movement Does Not Exist				10.3	B	11.7	B
		SB Left	54.3	F	449.7	F	19.6	C	30.4	D
		SB Right	13.0	B	19.7	C	10.4	B	12.7	B
9 Driveway D and Frontier Street	Minor Street Stop Control	SB Right	14.1	B	34.4	D	11.0	B	16.9	C
10 Driveway E and 11 Mile Corner Road	Minor Street Stop Control	EB Left	22.8	C	44.6	E	21.8	C	40.5	E
		EB Right	10.8	B	13.1	B	10.7	B	13.0	B
		NB Left/Thru	8.6	A	9.1	A	N/A - Movement Does Not Exist			
		NB Left	N/A - Movement Does Not Exist				8.6	A	9.1	A

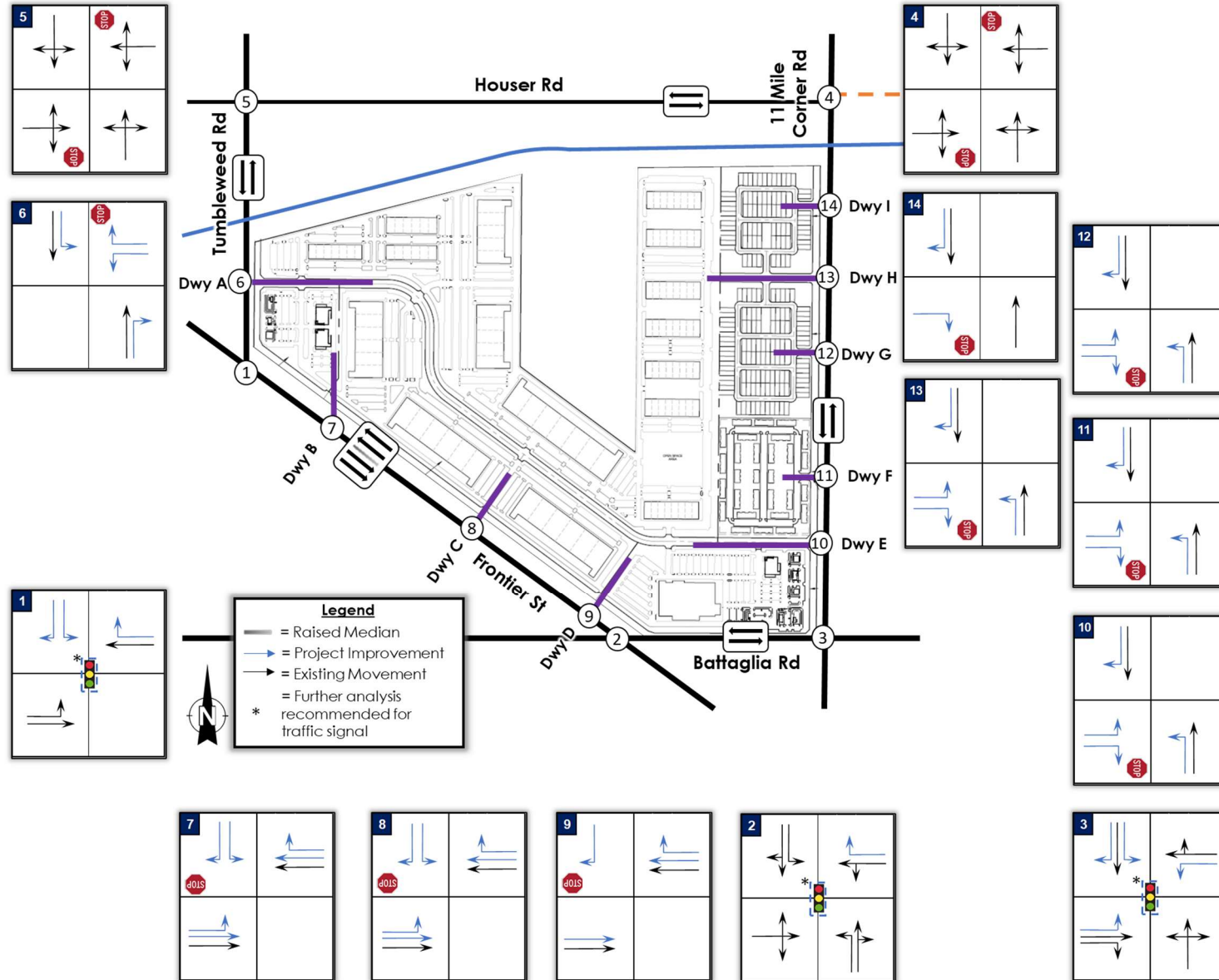


Figure 35: 2035 Recommended Lane Configuration and Traffic Control

PRINCIPAL FINDINGS

TRIP GENERATION

- At full buildout, the development is anticipated to generate a net total of 28,134 daily trips (entering and exiting) with internal reduction. A net total of 1,489 AM peak hour trips and 2,429 PM peak hour trips are projected.

SAFETY ANALYSIS

- During the five-year analysis period (2019-2023), there were a total of 46 crashes. The intersection with the most crashes was Battaglia Road and Frontier Street (alternately named Casa Grande Highway) with 22 crashes. The most common collision manner was angle (25 crashes), followed by rear end (10 crashes).
- There were four serious injury crashes, three (3) at the intersection of Battaglia Road and Casa Grande Highway and one (1) at Battaglia Road and 11 Mile Corner Road. All serious injury crashes were angle crash type.

SITE ACCESS

- The project is anticipated to be accessed by a total of nine new driveways – seven full access driveways and two right-in/right-out driveways. Six driveways will be constructed by opening year to serve the industrial and medical parcels (Driveways A, B, C, D, E, and H), and three additional driveways will be constructed by final buildout to serve the residential parcels (Driveways F, G, and I). Driveways A, B, D, E, and H are expected to provide cross access to serve multiple land uses.

LEVEL OF SERVICE ANALYSIS

- Under existing conditions, all movements at the study intersections are projected to operate at sufficient LOS.
- All movements at the study intersections are projected to operate at adequate LOS in the 2025 background and total conditions.
- Under 2030 total conditions, the eastbound left-/thru/right-turn movement at Frontier Street/Battaglia Road is expected to operate at LOS E in the PM peak hour. All other movements are expected to operate at LOS D or better in the 2030 background and total conditions.
- Under 2035 background and/or total conditions, several movements are expected to break down at Tumbleweed Road/Frontier Street, Frontier Street/Battaglia Road, 11 Mile Corner Road/Battaglia Road, and Driveways B, C, and E.
- With mitigation, most movements are projected to operate at LOS D or better. The southbound left-turn movement at Driveways B and eastbound left-turn movement at Driveway E are projected to operate at LOS E with 36.0 and 40.5 seconds of delay, respectively.

RECOMMENDATIONS

The recommended improvements to be installed by final buildout of the TES Eloy developments are:

Tumbleweed Road and Frontier Street

- Maintain the existing 200 feet of storage for the eastbound left-turn lane.
- Construct a dedicated westbound right-turn lane with 100 feet of storage
- Construct dedicated southbound left- and right-turn lanes with 150 feet of storage each.
- Re-evaluate the need for a traffic signal warrant analysis as the site plan becomes more refined and monitor traffic volumes as development progresses in the area. It is recommended to install a traffic signal at Tumbleweed Road/Frontier Street to alleviate the delays.

Frontier Street and Battaglia Road

- Lengthen the southbound left-turn lane to provide 325 feet of storage.
- Construct a westbound right-turn lane with 200 feet of storage.
- Re-evaluate the need for a traffic signal warrant analysis as the site plan becomes more refined and monitor traffic volumes as development progresses in the area. It is recommended to install a traffic signal at Frontier Street/Battaglia Road to alleviate the delays. Due to the shared turning and through lanes on the eastbound and westbound approaches, it is advised to operate the traffic signal with split phasing on the eastbound and westbound approaches.

11 Mile Corner Road and Battaglia Road

- Construct dedicated left- and right-turn lanes on the southbound approach with 175 feet and 100 feet of storage, respectively.
- Construct a dedicated eastbound left-turn lane with 225 feet of storage.
- While not along project frontage, there is sufficient width on the westbound approach to stripe a dedicated left-turn lane, allowing the eastbound and westbound left-turn movements to align. It is advised to stripe this westbound left-turn lane with at least 100 feet of storage.
- Re-evaluate the need for a traffic signal warrant analysis as the site plan becomes more refined and monitor traffic volumes as development progresses in the area. It is recommended to install a traffic signal at 11 Mile Corner Road/Battaglia Road to alleviate the delays. Due to the shared turning and through lanes on the northbound approach, it is advised to operate the traffic signal with split phasing on the northbound and southbound approaches.

11 Mile Corner Road and Houser Road

- Maintain existing lane configurations and traffic control.

Tumbleweed Road and Houser Road

- Maintain existing lane configurations and traffic control.

Driveway A and Tumbleweed Road

- Install a northbound right-turn lane with 175 feet of storage.
- Install a southbound left-turn lane with 100 feet of storage.
- Provide a STOP sign on the westbound exiting approach.
- Provide sufficient width for exiting traffic to separate themselves into left- and right-turn movements.

- Driveway A appears to be at least 500 feet south of a bridge crossing an irrigation canal; this is preliminarily anticipated to be sufficient distance for the tapering associated with the southbound left-turn lane without impacts to the bridge.

Driveway B and Frontier Street

- Provide a second eastbound and westbound through lane separated by a central raised median.
- Install a westbound right-turn lane with 100 feet of storage.
- Install an eastbound left-turn lane in the raised median with 100 feet of storage.
- Provide a STOP sign on the southbound exiting approach.
- Provide sufficient width for exiting traffic to separate themselves into left- and right-turn movements.

Driveway C and Frontier Street

- Provide a second eastbound and westbound through lane separated by a central raised median.
- Install a westbound right-turn lane with 100 feet of storage.
- Install an eastbound left-turn lane in the raised median with 175 feet of storage.
- Provide a STOP sign on the southbound exiting approach.
- Provide sufficient width for exiting traffic to separate themselves into left- and right-turn movements.
- Provide a staging area in the central raised median for southbound left-turn traffic to complete the maneuver in two stages.

Driveway D and Frontier Street

- Provide a second eastbound and westbound through lane separated by a central raised median.
- Install a westbound right-turn lane with 100 feet of storage.
- Provide a STOP sign on the southbound exiting approach.
- Provide a right-turn lane on the southbound approach for exiting traffic.

Driveways E, F, G, H, and I and 11 Mile Corner Road

- Install a southbound right-turn lane with 100 feet of storage at all driveways except for Driveway H, which will need 125 feet of storage.
- Install a northbound left-turn lane with 100 feet of storage at all driveways except for Driveway E, which is anticipated to need 275 feet of storage. Driveway I will not need a northbound left-turn lane, as it is anticipated to be restricted to right-in/right-out access due to its proximity to an existing utility service road.
- Provide a STOP sign on the eastbound exiting approach.
- Provide sufficient width for eastbound exiting traffic to separate themselves into left- and right-turn movements at all driveways except for Driveway I, which will only allow for right-turns.

APPENDICES

APPENDIX A: REVIEW COMMENTS

COMMENT RESPONSES

1st Review

Project:	TES Eloy TIA		
Project Location	Northeast Side of Battaglia Road and Frontier Street	Prepared by	Y2K Engineering
Agency	City of Eloy	Date of Report	9/10/2024
Reviewed By	M. Rencher and J. Hansen	Responses by	Melissa Gende
Date	6/9/2025	Date of Responses	10/23/2025

A = WILL COMPLY

C = AGENCY TO EVALUATE

B = CONSULTANT / APPLICANT TO EVALUATE

D = REVIEW TEAM RECOMMENDS NO FURTHER ACTION

No	Agency	Page #	Comment By	Comment	Disposition	Comment Addressed By	Response / Comment
1	COE	Cover	M. Rencher	Should be City of Eloy City Engineer	A	M. Gende	Text has been updated.
2	COE	Cover	M. Rencher	Should be City of Eloy Public Works Department	A	M. Gende	Text has been updated.
3	COE	Cover	M. Rencher	City of Eloy	A	M. Gende	Text has been updated.
4	COE	Executive Summary	M. Rencher	Parcel is only 332 acres, more or less	A	M. Gende	The net acreage is approximately 332 acres and the gross area is around 354 acres (and is indicated in the Pinal County parcel assessor map). Text has been added to clarify the gross acreage.
5	COE	Executive Summary	M. Rencher	Add number of total daily trips, not just peak hour	A	M. Gende	The daily trips has been added to the text.
6	COE	Executive Summary	J. Hansen	200' storage currently [Intersection of Tumbleweed Road and Frontier Street]	A	M. Gende	Noted, the existing 200 feet of storage at the intersection of Tumbleweed Road/Frontier Street has been updated in the text and tables.
7	COE	Executive Summary	J. Hansen	This intersection is currently a 4-way stop [intersection of 11 Mile Corner Road and Battaglia Road]	A	M. Gende	The intersection text, synchro modeling, and LOS tables have been updated to show the four way stop at the intersection of 11 Mile Corner Road and Battaglia Road.
8	COE	Executive Summary	J. Hansen	Evaluate storage design in regards to the existing canal bridge to the north and constraints it may have [Intersection of Driveway A and Tumbleweed Road]	D	M. Gende	The site plan has been revised, and the driveway is recommended to be restricted to right-in/right-out, eliminating the need for a northbound left-turn lane. The driveway is approximately 400 feet south of the existing utility road for the water treatment plant (centerline-to-centerline), and sufficient distance is expected to be able to install a southbound right-turn lane without impacts to the canal bridge.
9	COE	Executive Summary	J. Hansen	Commercial property to access off of tumbleweed or internally. [Remove intersection of Driveway I and Frontier Street]	C	M. Gende	This comment and comment #13 gave conflicting recommendations. We reached out to the City to discuss these comments but did not receive a response by our resubmittal deadline and moved forward with accepting comment #13. The revised site plan consolidates proposed accesses along Frontier Street and moves full access driveways farther away from the proposed signalized intersections providing 800 feet of space between the driveway and Tumbleweed Road on Frontier Street in addition to a full access driveway on Tumbleweed Road 550 feet north of Frontier Street.
10	COE	Page 8	J. Hansen	This is a 4-way stop [Intersection of 11 Mile Corner Road and Battaglia Road]	A	M. Gende	Please see response to Comment #7.

No	Agency	Page #	Comment By	Comment	Disposition	Comment Addressed By	Response / Comment
11	COE	Page 11	M. Rencher	Revise to reflect accurate current traffic counts, which can be found at https://scmpo.public.ms2soft.com/tcds/tsearch.asp?loc=Scmpo&mod=	D	M. Gende	The link provided offers directional volumes along the roadway segments, but does not offer peak hour turning movement counts at the intersections. Furthermore, data collection dates are out of date with the most recent counts collected in 2020. We evaluated daily volumes calculated from our peak hour turning movement counts assuming peak hour traffic is approximately 10% of daily traffic and found the daily volumes were comparable to the daily volumes reported at the link. In order to keep as much information as possible regarding peak hour volumes and turning movements, we have decided to continue using the collected counts for this study.
12	COE	Page 14	M. Rencher	Proposed plan is not consistent with approved General Plan land uses. The approved land use currently identifies all light industrial and the western edge of the general industrial as medium-density residential housing.	D	M. Gende	The developer is pursuing a major amendment to the general plan concurrent with this rezoning request. Text has been added to the Proposed Development section reflecting this.
13	COE	Page 14	M. Rencher	Intersections 1, 14, and 7 are all too close together. Please revise and consider a full-access driveway at either 14 or 7	A	M. Gende	The site plan has been revised.
14	COE	Page 14	J. Hansen	Why not make this right-in/right-out?	D	M. Gende	The site plan has been revised to consolidate nearby driveways.
15	COE	Page 25	M. Rencher	Projected volumes at buildout are lower than the current volumes. See traffic count data location link above Please revise accordingly.	D	M. Gende	This comment is referencing the site trip assignment figure, which only distributes volumes generated by the proposed development and does not include background existing volumes. It's possible that the trips generated by the site may be less than what is currently existing. The total traffic volumes (Figure 31, 32, and 33) combine the site traffic and the growth in the area.
16	COE	Page 31	M. Rencher	It appears that these traffic volumes will trigger the Warrant #3 for a traffic signal according to the MUTCD at any (or all) of the following intersections: 1, 2, 3, and/or 4	D	M. Gende	The site plan has been updated with several new land uses and parcel breakdowns, and analysis has been updated throughout. Intersections 1, 2, and 3 are identified as potentially requiring a traffic signal in the future. Intersection #4 is projected to operate well with minor-street stop control in 2035 total conditions and signal warrant #3 is generally not applicable to mixed use developments per MUTCD language stating that warrant #3 shall only be applied in unusual cases.
17	COE	Page 35	J. Hansen	It seems these intersections should be signalized [Driveway B, C, and D]	D	M. Gende	The mitigation section discusses several options to improve capacity at the intersections and alleviate most delay. Traffic signals are not recommended to alleviate the delays with the updated analysis. Traffic signals identified at the major crossroads of intersections 1, 2 & 3 will create sufficient breaks in traffic flow to provide gaps for vehicles turning to and from the site driveways.

No	Agency	Page #	Comment By	Comment	Disposition	Comment Addressed By	Response / Comment
18	COE	Conclusion	J. Hansen	With the existing bridge over the canal, this design will need to be evaluated more closely for expansion	A	M. Gende	Roadway widening for a left-turn lane is not anticipated to be necessary around the north-most driveway on 11 Mile Corner Road, as it will be restricted to right-in/right-out access. A southbound right-turn lane is anticipated to fit, as the driveway is about 400 feet south of the water treatment plant road (centerline-to-centerline).
19	COE	Appendix C	J. Hansen	200' storage (existing) [Intersection of Frontier Street and Tumbleweed Road]	A	M. Gende	The synchro analysis has been updated to note the current storage length.
20	COE	Appendix C	J. Hansen	225' storage (existing) [Intersection of Battaglia Road and Frontier Street]	A	M. Gende	The synchro analysis has been updated to note the current storage length.
21	COE	Appendix D	M. Rencher	Land use table needs to be revised to reflect current adopted General Plan	D	M. Gende	Please see response to Comment #12.

APPENDIX B: EXISTING TRAFFIC VOLUMES



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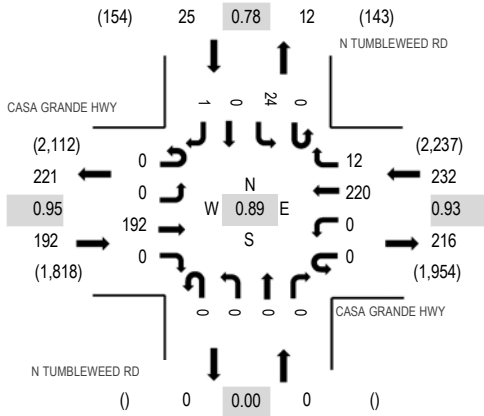
Location: 1 N TUMBLEWEED RD & CASA GRANDE HWY AM

Date: Wednesday, August 28, 2024

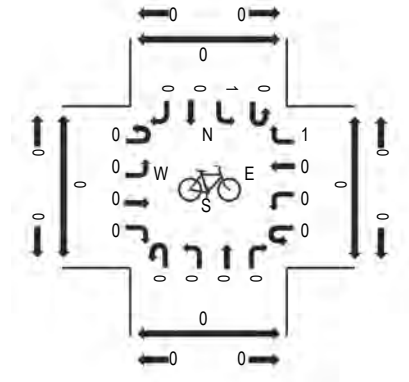
Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 04:30 PM - 04:45 PM

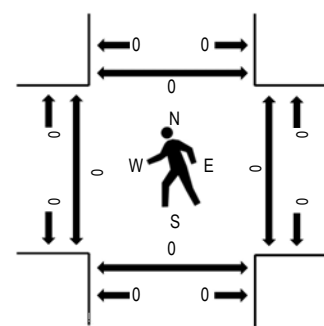
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	CASA GRANDE HWY				CASA GRANDE HWY				N TUMBLEWEED RD				N TUMBLEWEED RD				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound						West East South North			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right						
6:00 AM	0	0	22	0	0	0	19	0	0	0	0	0	0	1	0	0	42	251	0	0	0	0
6:15 AM	0	0	20	0	0	0	27	4	0	0	0	0	0	2	0	0	53	278	0	0	0	0
6:30 AM	0	0	26	0	0	0	39	5	0	0	0	0	0	3	0	0	73	317	0	0	0	0
6:45 AM	0	0	38	0	0	0	38	3	0	0	0	0	0	3	0	1	83	349	0	0	0	0
7:00 AM	0	0	27	0	0	0	38	0	0	0	0	0	0	2	0	2	69	378	0	0	0	0
7:15 AM	0	0	42	0	0	0	43	1	0	0	0	0	0	6	0	0	92	403	0	0	0	0
7:30 AM	0	0	41	0	0	0	60	2	0	0	0	0	0	2	0	0	105	391	0	0	0	0
7:45 AM	0	0	46	0	0	0	59	3	0	0	0	0	0	4	0	0	112	358	0	0	0	0
8:00 AM	0	0	33	0	0	0	53	2	0	0	0	0	0	6	0	0	94	307	0	0	0	0
8:15 AM	0	0	42	0	0	0	35	2	0	0	0	0	0	1	0	0	80	285	0	0	0	0
8:30 AM	0	1	25	0	0	0	42	2	0	0	0	0	0	2	0	0	72	283	0	0	0	0
8:45 AM	0	0	30	0	0	0	28	2	0	0	0	0	0	1	0	0	61	277	0	0	0	0
9:00 AM	0	0	25	0	0	0	41	2	0	0	0	0	0	4	0	0	72	271	0	0	0	0
9:15 AM	0	0	30	0	0	0	40	3	0	0	0	0	0	5	0	0	78	267	0	0	0	0
9:30 AM	0	2	30	0	0	0	30	1	0	0	0	0	0	3	0	0	66	259	0	0	0	0
9:45 AM	0	0	14	0	0	0	38	1	0	0	0	0	0	2	0	0	55	258	0	0	0	0
10:00 AM	0	1	33	0	0	0	32	1	0	0	0	0	0	1	0	0	68	263	0	0	0	0
10:15 AM	0	0	37	0	0	0	28	4	0	0	0	0	0	1	0	0	70	257	0	0	0	0
10:30 AM	0	0	19	0	0	0	42	3	0	0	0	0	0	1	0	0	65	248	0	0	0	0
10:45 AM	0	0	28	0	0	0	29	0	0	0	0	0	0	3	0	0	60	237	0	0	0	0
11:00 AM	0	0	29	0	0	0	30	1	0	0	0	0	0	2	0	0	62	279	0	0	0	0
11:15 AM	0	0	21	0	0	0	36	1	0	0	0	0	0	3	0	0	61	296	0	0	0	0
11:30 AM	0	0	23	0	0	0	25	4	0	0	0	0	0	2	0	0	54	317	0	0	0	0
11:45 AM	0	0	37	0	0	0	60	1	0	0	0	0	0	3	0	1	102	346	0	0	0	0
12:00 PM	0	0	26	0	0	0	45	2	0	0	0	0	0	5	0	1	79	309	0	0	0	0
12:15 PM	0	0	38	0	0	0	37	4	0	0	0	0	0	3	0	0	82	296	0	0	0	0
12:30 PM	0	0	34	0	0	0	41	6	0	0	0	0	0	2	0	0	83	289	0	0	0	0
12:45 PM	0	0	33	0	0	0	25	4	0	0	0	0	0	3	0	0	65	275	0	0	0	0
1:00 PM	0	0	28	0	0	0	33	2	0	0	0	0	0	3	0	0	66	281	0	0	0	0
1:15 PM	0	0	34	0	0	0	34	2	0	0	0	0	0	4	0	1	75	294	0	0	0	0
1:30 PM	0	0	33	0	0	0	31	2	0	0	0	0	0	3	0	0	69	306	0	0	0	0
1:45 PM	0	0	28	0	0	0	42	1	0	0	0	0	0	0	0	0	71	339	0	0	0	0
2:00 PM	0	0	36	0	0	0	36	6	0	0	0	0	0	1	0	0	79	365	0	0	0	0
2:15 PM	0	0	28	0	0	0	55	2	0	0	0	0	0	2	0	0	87	366	0	0	0	0

2:30 PM	0	0	57	0	0	0	41	4	0	0	0	0	0	0	0	0	102	382	0	0	0	0
2:45 PM	0	0	42	0	0	0	54	1	0	0	0	0	0	0	0	0	97	372	0	0	0	0
3:00 PM	0	0	36	0	0	0	41	1	0	0	0	0	0	1	0	1	80	394	0	0	0	0
3:15 PM	0	1	41	0	0	0	52	8	0	0	0	0	0	1	0	0	103	420	0	0	0	0
3:30 PM	0	0	31	0	0	0	55	4	0	0	0	0	0	2	0	0	92	405	0	0	0	0
3:45 PM	0	0	50	0	0	0	59	6	0	0	0	0	0	4	0	0	119	439	0	0	0	0
4:00 PM	0	0	43	0	0	0	56	1	0	0	0	0	0	6	0	0	106	424	0	0	0	0
4:15 PM	0	0	44	0	0	0	38	5	0	0	0	0	0	1	0	0	88	438	0	0	0	0
4:30 PM	0	0	48	0	0	0	65	5	0	0	0	0	0	8	0	0	126	449	0	0	0	0
4:45 PM	0	0	51	0	0	0	46	3	0	0	0	0	0	4	0	0	104	397	0	0	0	0
5:00 PM	0	0	51	0	0	0	59	4	0	0	0	0	0	5	0	1	120	373	0	0	0	0
5:15 PM	0	0	42	0	0	0	50	0	0	0	0	0	0	7	0	0	99	330	0	0	0	0
5:30 PM	0	0	36	0	0	0	30	5	0	0	0	0	0	2	0	1	74	320	0	0	0	0
5:45 PM	0	0	37	0	0	0	37	3	0	0	0	0	0	2	0	1	80	321	0	0	0	0
6:00 PM	0	0	38	0	0	0	36	2	0	0	0	0	0	1	0	0	77	314	0	0	0	0
6:15 PM	0	0	50	0	0	0	31	4	0	0	0	0	0	4	0	0	89		0	0	0	0
6:30 PM	0	1	39	0	0	0	33	1	0	0	0	0	0	1	0	0	75		0	0	0	0
6:45 PM	0	0	40	0	0	0	26	1	0	0	0	0	0	4	0	2	73		0	0	0	0
Count Total	0	6	1,812	0	0	0	2,100	137	0	0	0	0	0	142	0	12	4,209		0	0	0	0
Peak Hour	0	0	192	0	0	0	220	12	0	0	0	0	0	24	0	1	449		0	0	0	0



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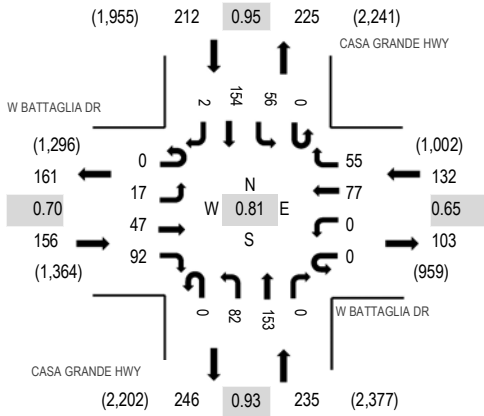
Location: 2 CASA GRANDE HWY & W BATTAGLIA DR AM

Date: Wednesday, August 28, 2024

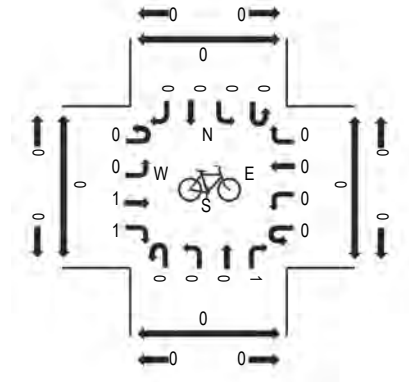
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Peak 15-Minutes: 04:30 PM - 04:45 PM

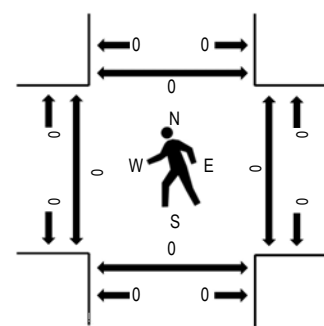
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	W BATTAGLIA DR Eastbound				W BATTAGLIA DR Westbound				CASA GRANDE HWY Northbound				CASA GRANDE HWY Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:00 AM	0	0	11	6	0	0	6	7	0	6	14	1	0	4	20	0	75	445	0	0	0	0
6:15 AM	0	1	9	20	0	0	4	6	0	9	21	0	0	6	11	4	91	500	0	0	0	0
6:30 AM	0	1	20	19	0	0	8	11	0	9	32	0	0	3	17	8	128	563	0	0	0	0
6:45 AM	0	4	22	20	0	0	9	9	0	18	28	0	0	3	33	5	151	639	0	0	0	0
7:00 AM	0	1	24	15	0	0	11	12	0	11	26	1	0	5	23	1	130	656	0	0	0	0
7:15 AM	0	0	25	18	0	0	9	16	0	10	30	0	0	13	33	0	154	673	0	0	0	0
7:30 AM	0	3	33	35	0	0	14	19	0	15	40	0	0	10	34	1	204	620	0	0	0	0
7:45 AM	0	2	21	18	0	0	8	16	0	12	42	0	0	12	34	3	168	527	0	0	0	0
8:00 AM	0	3	10	13	0	0	7	11	0	19	44	0	0	9	30	1	147	459	0	0	0	0
8:15 AM	0	1	9	3	0	0	10	6	0	5	27	1	0	4	33	2	101	425	0	0	0	0
8:30 AM	0	1	3	14	0	0	9	8	0	8	37	0	0	7	24	0	111	441	0	0	0	0
8:45 AM	0	1	3	22	0	1	7	2	0	10	26	1	0	4	23	0	100	429	0	0	0	0
9:00 AM	0	0	9	13	0	0	7	9	0	10	33	1	0	2	28	1	113	418	0	0	0	0
9:15 AM	0	2	10	7	0	0	9	5	0	14	37	0	0	4	28	1	117	398	0	0	0	0
9:30 AM	0	1	9	7	0	0	5	3	0	9	27	1	0	4	32	1	99	385	0	0	0	0
9:45 AM	0	0	9	9	0	0	6	12	0	10	29	0	0	2	12	0	89	386	0	0	0	0
10:00 AM	0	2	3	7	0	0	6	3	0	7	27	0	0	8	27	3	93	385	0	0	0	0
10:15 AM	0	1	4	9	0	0	8	7	0	11	27	0	0	14	20	3	104	404	0	0	0	0
10:30 AM	0	3	3	13	0	0	11	11	0	10	28	0	0	6	15	0	100	402	0	0	0	0
10:45 AM	0	3	7	9	0	0	5	4	0	10	20	0	0	6	23	1	88	402	0	0	0	0
11:00 AM	0	3	6	18	0	0	7	4	0	17	25	0	0	6	26	0	112	451	0	0	0	0
11:15 AM	0	0	8	10	0	0	9	8	0	12	30	1	0	5	15	4	102	447	0	0	0	0
11:30 AM	0	4	7	21	0	0	5	9	0	9	19	1	0	1	22	2	100	467	0	0	0	0
11:45 AM	0	1	8	16	0	0	3	8	0	14	48	0	0	9	30	0	137	478	0	0	0	0
12:00 PM	0	2	2	11	0	0	5	6	0	8	43	0	0	2	28	1	108	426	0	0	0	0
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12:30 PM	0	1	10	9	0	0	5	7	0	8	36	0	0	7	27	1	111	399	0	0	0	0
12:45 PM	0	3	1	3	1	0	4	6	0	9	22	1	0	9	26	0	85	393	0	0	0	0
1:00 PM	0	0	7	11	0	0	5	2	0	4	33	0	0	10	22	1	95	419	0	0	0	0
1:15 PM	0	2	9	9	0	0	6	7	0	13	25	0	0	6	27	4	108	454	0	0	0	0
1:30 PM	0	1	5	13	0	0	4	10	0	12	23	1	0	7	27	2	105	469	0	0	0	0
1:45 PM	0	2	7	15	0	1	5	6	0	11	36	0	0	5	21	2	111	516	0	0	0	0
2:00 PM	0	1	10	15	0	0	10	8	0	14	36	0	0	8	27	1	130	555	0	0	0	0
2:15 PM	0	1	8	5	0	0	12	7	0	11	46	0	0	5	27	1	123	582	0	0	0	0

2:30 PM	0	2	16	12	0	0	11	7	0	10	39	0	0	13	40	2	152	637	0	0	0	0
2:45 PM	0	3	11	8	0	0	17	10	0	21	39	0	0	9	30	2	150	652	0	0	0	0
3:00 PM	0	3	20	21	0	0	12	10	0	20	31	1	0	9	29	1	157	685	0	0	0	0
3:15 PM	0	1	11	18	0	0	28	8	0	19	49	0	0	7	34	3	178	698	0	0	0	0
3:30 PM	0	6	14	24	0	0	10	8	0	23	47	0	0	12	23	0	167	667	0	0	0	0
3:45 PM	0	4	9	15	0	0	22	10	0	26	48	0	0	10	37	2	183	727	0	0	0	0
4:00 PM	0	2	10	15	0	0	15	10	0	15	49	0	0	11	42	1	170	720	0	0	0	0
4:15 PM	0	2	13	19	0	0	18	9	0	13	27	0	0	13	33	0	147	735	0	0	0	0
4:30 PM	0	11	18	30	0	0	31	21	0	20	40	0	0	14	41	1	227	733	0	0	0	0
4:45 PM	0	2	7	23	0	0	17	10	0	20	41	0	0	15	40	1	176	643	0	0	0	0
5:00 PM	0	2	9	20	0	0	11	15	0	29	45	0	0	14	40	0	185	595	0	0	0	0
5:15 PM	0	1	12	14	0	0	12	13	0	11	35	0	0	11	36	0	145	521	0	0	0	0
5:30 PM	0	1	12	10	0	0	22	10	0	13	27	0	0	9	32	1	137	496	0	0	0	0
5:45 PM	0	0	13	15	0	0	17	8	0	6	30	0	0	11	27	1	128	499	0	0	0	0
6:00 PM	0	2	6	9	0	0	9	10	0	11	27	0	0	11	24	2	111	484	0	0	0	0
6:15 PM	0	0	3	4	0	0	15	10	0	13	23	0	0	12	40	0	120		0	0	0	2
6:30 PM	0	1	13	14	0	0	13	7	0	21	27	1	0	9	31	3	140		0	0	0	0
6:45 PM	0	2	5	12	0	0	20	6	0	13	17	0	0	5	32	1	113		0	0	0	0
Count Total	0	97	538	729	1	2	546	453	0	674	1,691	12	0	408	1,471	76	6,698		0	0	0	2
Peak Hour	0	17	47	92	0	0	77	55	0	82	153	0	0	56	154	2	735		0	0	0	0



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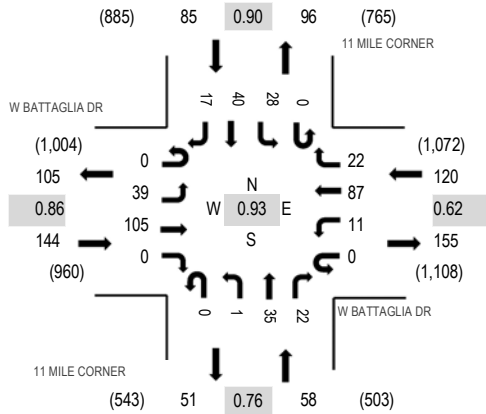
Location: 3 11 MILE CORNER & W BATTAGLIA DR AM

Date: Wednesday, August 28, 2024

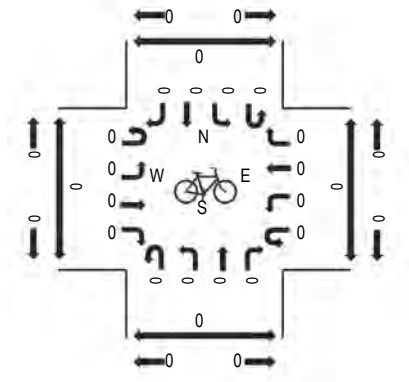
Peak Hour: 07:00 AM - 08:00 AM

Peak 15-Minutes: 07:15 AM - 07:30 AM

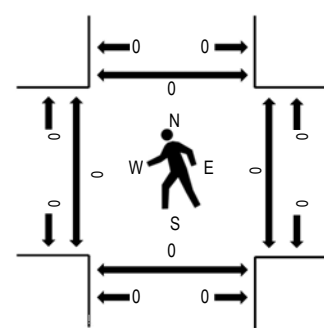
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	W BATTAGLIA DR Eastbound				W BATTAGLIA DR Westbound				11 MILE CORNER Northbound				11 MILE CORNER Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:00 AM	0	5	11	0	0	2	12	4	0	0	2	3	0	0	4	1	44	233	0	0	0	0
6:15 AM	0	9	4	0	0	1	10	4	0	0	11	4	0	3	2	1	49	271	0	0	0	0
6:30 AM	0	14	9	0	0	3	15	3	0	0	4	2	0	4	7	3	64	331	0	0	0	0
6:45 AM	0	11	16	0	0	2	15	5	0	0	5	4	0	6	9	3	76	376	0	0	0	0
7:00 AM	0	11	15	0	0	1	16	5	0	0	9	1	0	5	12	7	82	407	0	0	0	0
7:15 AM	0	10	31	0	0	4	25	3	0	1	9	5	0	8	8	5	109	387	0	0	0	0
7:30 AM	0	8	34	0	0	1	25	6	0	0	10	9	0	6	6	4	109	328	0	0	0	0
7:45 AM	0	10	25	0	0	5	21	8	0	0	7	7	0	9	14	1	107	268	0	0	0	0
8:00 AM	0	5	13	1	0	3	12	5	0	1	5	0	0	1	11	5	62	199	0	0	0	0
8:15 AM	0	6	7	0	0	0	11	2	0	0	7	2	0	3	7	5	50	197	0	0	0	0
8:30 AM	0	2	8	1	0	2	12	4	0	0	3	2	0	3	6	6	49	196	0	0	0	0
8:45 AM	0	0	7	0	0	3	6	1	0	0	5	3	0	1	9	3	38	187	0	0	0	0
9:00 AM	0	3	8	1	0	3	11	3	0	0	8	3	0	5	9	6	60	198	0	0	0	0
9:15 AM	0	7	7	0	0	0	5	4	0	1	10	1	0	3	4	7	49	180	0	0	0	0
9:30 AM	0	7	6	1	0	1	6	2	0	0	8	0	0	2	5	2	40	180	0	0	0	0
9:45 AM	0	2	9	0	0	3	13	3	0	1	5	1	0	4	4	4	49	190	0	0	0	0
10:00 AM	0	2	8	0	0	1	6	3	0	0	8	2	0	5	4	3	42	180	0	0	0	0
10:15 AM	0	1	18	0	0	2	11	4	0	0	2	1	0	3	3	4	49	185	0	0	0	0
10:30 AM	0	2	7	0	0	3	16	3	0	1	5	2	0	2	4	5	50	183	0	0	0	0
10:45 AM	0	6	6	0	0	1	6	3	0	0	8	2	0	4	0	3	39	174	0	0	0	0
11:00 AM	0	3	8	1	0	3	8	5	0	1	4	2	0	1	7	4	47	187	0	0	0	0
11:15 AM	0	3	13	0	0	4	11	2	0	0	4	1	0	3	1	5	47	194	0	0	0	0
11:30 AM	0	1	7	1	0	1	12	1	0	0	3	2	0	4	7	2	41	196	0	0	0	0
11:45 AM	0	1	15	0	0	0	9	2	0	1	12	0	0	6	5	1	52	211	0	0	0	0
12:00 PM	0	2	2	1	0	2	10	4	0	0	16	2	0	1	12	2	54	203	0	0	0	0
12:15 PM	0	2	8	2	0	3	8	1	0	1	6	4	0	1	8	5	49	202	0	0	0	0
12:30 PM	0	4	11	0	0	1	9	4	0	0	7	5	0	2	10	3	56	226	0	0	0	0
12:45 PM	0	1	13	0	0	2	9	4	0	0	4	0	0	3	7	1	44	225	0	0	0	0
1:00 PM	0	4	10	2	0	4	3	2	0	0	7	2	0	4	11	4	53	227	0	0	0	0
1:15 PM	0	5	11	0	0	2	10	9	0	0	12	2	0	6	13	3	73	234	0	0	0	0
1:30 PM	0	1	10	0	0	2	14	4	0	0	9	1	0	5	9	0	55	227	0	0	0	0
1:45 PM	0	0	13	1	0	0	9	4	0	0	3	3	0	3	6	4	46	255	0	0	0	0
2:00 PM	0	6	10	0	0	3	12	1	0	0	6	0	0	10	7	5	60	284	0	0	0	0
2:15 PM	0	4	8	2	0	3	11	10	0	0	9	2	0	4	5	8	66	307	0	0	0	0

2:30 PM	0	4	23	0	0	4	12	1	0	0	9	2	0	11	13	4	83	338	0	0	0	0
2:45 PM	0	4	17	0	0	1	22	4	0	0	5	3	0	5	7	7	75	351	0	0	0	0
3:00 PM	0	5	24	0	0	3	16	4	0	0	7	5	0	4	11	4	83	356	0	0	0	0
3:15 PM	0	4	14	0	0	3	22	8	0	0	11	3	0	8	10	14	97	357	0	0	0	0
3:30 PM	0	5	23	1	0	3	15	6	0	0	11	2	0	12	14	4	96	349	0	0	0	0
3:45 PM	0	3	14	0	0	5	22	2	0	0	5	1	0	11	8	9	80	376	0	0	0	0
4:00 PM	0	4	18	0	0	2	20	4	0	1	4	6	0	10	10	5	84	376	0	0	0	0
4:15 PM	0	5	21	0	0	2	18	4	0	0	4	5	0	9	12	9	89	360	0	0	0	0
4:30 PM	0	1	31	1	0	8	45	5	0	0	6	6	0	7	4	9	123	346	0	0	0	0
4:45 PM	0	2	19	0	0	3	18	5	0	1	10	2	0	3	9	8	80	312	0	0	0	0
5:00 PM	0	5	18	0	0	2	22	4	0	0	6	2	0	2	4	3	68	308	0	0	0	0
5:15 PM	0	2	18	2	0	6	22	3	0	0	6	3	0	6	3	4	75	306	0	0	0	0
5:30 PM	0	5	17	1	0	5	20	3	0	0	8	5	0	7	8	10	89	294	0	0	0	0
5:45 PM	0	4	19	1	0	2	18	3	0	1	7	0	0	7	8	6	76	285	0	0	0	0
6:00 PM	0	2	13	1	0	4	18	3	0	0	6	2	0	7	7	3	66	262	0	0	0	2
6:15 PM	0	1	14	0	0	1	15	3	0	1	4	4	0	3	10	7	63		0	0	0	0
6:30 PM	0	4	19	0	0	5	18	3	0	1	7	3	0	6	10	4	80		0	0	0	0
6:45 PM	0	0	10	1	0	2	13	2	0	1	3	3	0	3	5	10	53		0	0	0	0
Count Total	0	218	720	22	0	132	745	195	0	14	352	137	0	251	389	245	3,420		0	0	0	2
Peak Hour	0	39	105	0	0	11	87	22	0	1	35	22	0	28	40	17	407		0	0	0	0



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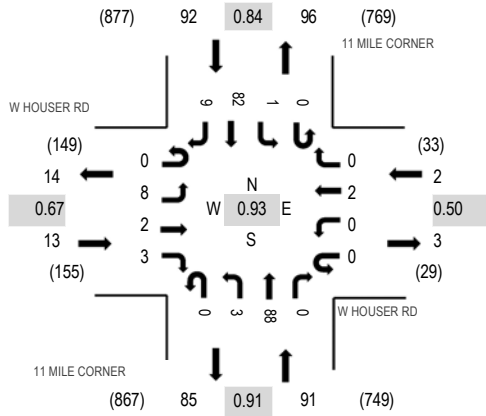
Location: 4 11 MILE CORNER & W HOUSER RD AM

Date: Wednesday, August 28, 2024

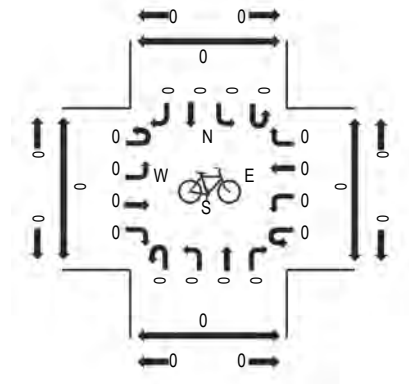
Peak Hour: 07:00 AM - 08:00 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

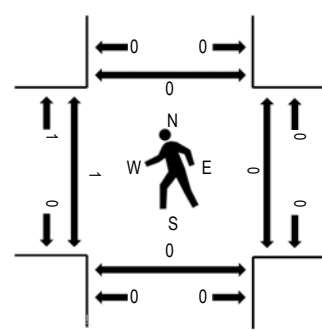
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	W HOUSER RD Eastbound				W HOUSER RD Westbound				11 MILE CORNER Northbound				11 MILE CORNER Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:00 AM	0	2	0	0	0	0	0	0	0	2	9	0	0	0	4	1	18	150	0	0	0	0
6:15 AM	0	4	0	2	0	1	1	0	0	0	22	0	0	0	6	4	40	181	0	0	0	0
6:30 AM	0	5	1	3	0	0	0	0	0	2	21	0	0	1	12	2	47	192	0	0	0	0
6:45 AM	0	2	0	3	0	0	1	0	0	0	19	0	0	0	16	4	45	190	0	0	0	0
7:00 AM	0	1	2	1	0	0	0	0	0	1	21	0	0	0	22	1	49	198	0	0	0	0
7:15 AM	0	3	0	1	0	0	1	0	0	0	22	0	0	0	20	4	51	189	0	0	0	0
7:30 AM	0	2	0	1	0	0	1	0	0	0	22	0	0	1	17	1	45	167	1	0	0	0
7:45 AM	0	2	0	0	0	0	0	0	0	2	23	0	0	0	23	3	53	155	0	0	0	0
8:00 AM	0	3	0	5	0	0	1	2	0	2	14	0	0	0	12	1	40	121	0	0	0	0
8:15 AM	0	0	1	2	0	0	0	0	0	2	13	0	0	0	10	1	29	115	0	0	0	0
8:30 AM	0	4	1	3	0	0	0	1	0	0	10	0	0	1	12	1	33	123	0	0	0	0
8:45 AM	0	0	1	1	0	0	0	0	0	0	5	0	0	0	12	0	19	112	0	0	0	0
9:00 AM	0	1	0	1	0	0	1	1	0	1	10	0	0	0	18	1	34	119	0	0	0	0
9:15 AM	0	0	0	0	0	0	1	0	0	0	22	0	0	0	13	1	37	115	0	0	0	0
9:30 AM	0	1	0	0	0	0	0	0	0	1	12	0	0	0	8	0	22	101	0	0	0	0
9:45 AM	1	0	0	0	0	0	0	0	0	1	10	0	0	1	13	0	26	107	0	0	0	0
10:00 AM	0	2	1	3	0	0	0	0	0	2	11	0	0	0	11	0	30	108	0	0	0	0
10:15 AM	0	1	0	1	0	1	1	0	0	0	8	0	0	0	9	2	23	100	0	0	0	0
10:30 AM	0	2	1	0	0	1	0	0	0	2	9	0	0	0	9	4	28	100	0	0	0	0
10:45 AM	0	1	0	1	0	0	0	1	0	2	12	0	0	1	8	1	27	93	0	0	0	0
11:00 AM	0	0	1	0	0	0	0	0	0	0	11	0	0	1	7	2	22	95	0	0	0	0
11:15 AM	0	2	1	0	0	0	0	1	0	1	9	1	0	0	8	0	23	104	0	0	0	0
11:30 AM	0	3	0	3	0	0	0	1	0	1	2	0	0	0	10	1	21	112	0	0	0	0
11:45 AM	0	1	1	1	0	0	0	0	0	2	11	1	0	0	12	0	29	119	0	0	0	0
12:00 PM	0	0	0	0	0	0	2	0	0	1	13	0	0	0	13	2	31	115	0	0	0	0
12:15 PM	0	1	0	1	0	0	0	0	0	2	12	0	0	0	14	1	31	119	0	0	0	0
12:30 PM	0	1	0	1	0	0	0	0	0	2	11	0	0	0	11	2	28	130	0	0	0	0
12:45 PM	0	0	0	3	0	0	0	0	0	1	10	0	0	0	9	2	25	136	0	0	0	0
1:00 PM	0	1	1	3	0	0	0	0	0	1	11	0	0	0	17	1	35	132	0	0	0	0
1:15 PM	0	0	0	1	0	0	0	0	0	2	20	0	0	0	19	0	42	138	0	0	0	0
1:30 PM	0	1	1	3	0	0	1	0	0	2	12	1	0	0	11	2	34	139	0	0	0	0
1:45 PM	0	1	0	1	0	0	0	0	0	1	6	0	0	0	11	1	21	157	0	0	0	0
2:00 PM	0	0	0	2	0	0	0	0	0	3	11	0	0	0	21	4	41	171	0	0	0	0
2:15 PM	0	1	0	0	0	0	2	0	0	2	22	0	0	0	14	2	43	167	0	0	0	0

2:30 PM	0	2	0	3	0	0	0	0	0	4	14	0	0	0	25	4	52	176	0	0	0	0
2:45 PM	0	1	0	0	0	0	1	0	0	1	13	0	0	0	18	1	35	182	0	0	0	0
3:00 PM	0	0	0	2	0	0	1	0	0	1	12	0	0	1	18	2	37	183	0	0	0	0
3:15 PM	0	1	0	2	0	0	0	0	0	0	22	0	0	0	27	0	52	183	0	0	0	0
3:30 PM	0	4	0	1	0	0	0	0	0	0	20	1	0	0	31	1	58	178	0	0	0	0
3:45 PM	0	0	0	1	0	0	0	1	0	0	9	0	0	1	24	0	36	160	0	0	0	0
4:00 PM	0	1	0	1	0	0	0	0	0	2	12	0	0	0	21	0	37	165	0	0	0	0
4:15 PM	0	1	1	1	0	1	0	1	0	1	12	0	0	0	29	0	47	154	0	0	0	0
4:30 PM	0	3	0	1	0	0	1	0	0	2	10	0	0	0	18	5	40	133	0	0	0	0
4:45 PM	0	0	0	1	0	2	1	0	0	1	18	0	0	1	15	2	41	134	0	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	14	0	0	0	9	2	26	133	0	0	0	0
5:15 PM	0	0	1	0	0	0	0	0	0	1	10	0	0	0	14	0	26	134	0	0	0	0
5:30 PM	0	2	0	0	0	0	0	0	0	2	12	0	0	0	25	0	41	136	0	0	0	0
5:45 PM	0	2	0	2	0	0	0	0	0	0	16	0	0	0	20	0	40	137	0	0	0	0
6:00 PM	0	0	0	2	0	0	0	0	0	0	12	0	0	0	13	0	27	124	0	0	0	0
6:15 PM	0	1	1	0	0	0	0	0	0	0	7	0	0	0	19	0	28		0	0	0	0
6:30 PM	0	2	0	3	0	0	0	0	0	1	13	0	0	0	20	3	42		0	0	0	0
6:45 PM	0	2	0	0	0	0	0	1	0	0	6	0	0	0	16	2	27		0	0	0	0
Count Total	1	71	16	67	0	6	17	10	0	57	688	4	0	9	794	74	1,814		1	0	0	0
Peak Hour	0	8	2	3	0	0	2	0	0	3	88	0	0	1	82	9	198		1	0	0	0



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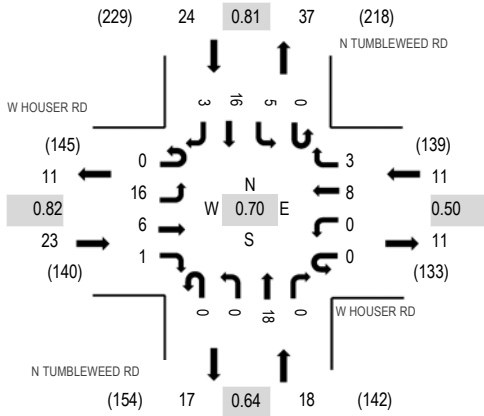
Location: 5 N TUMBLEWEED RD & W HOUSER RD AM

Date: Wednesday, August 28, 2024

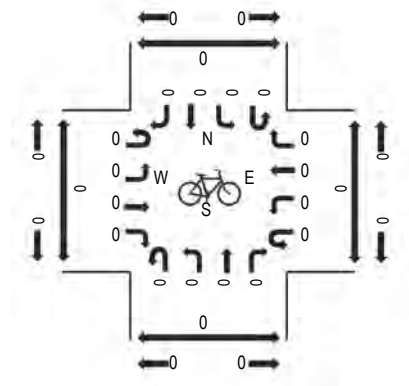
Peak Hour: 03:45 PM - 04:45 PM

Peak 15-Minutes: 04:30 PM - 04:45 PM

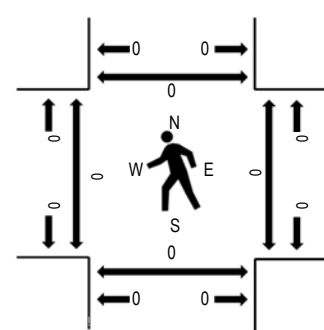
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	W HOUSER RD Eastbound				W HOUSER RD Westbound				N TUMBLEWEED RD Northbound				N TUMBLEWEED RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:00 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	1	4	58	0	0	0	0
6:15 AM	0	1	4	0	0	0	4	1	0	0	4	0	0	2	2	0	18	66	0	0	0	0
6:30 AM	0	0	7	0	0	0	4	0	0	0	5	0	0	0	3	2	21	66	0	0	0	0
6:45 AM	0	0	2	0	0	0	5	1	0	0	3	0	0	0	4	0	15	58	0	0	0	0
7:00 AM	0	0	3	0	0	0	3	1	0	0	0	0	0	2	3	0	12	59	0	0	0	0
7:15 AM	0	1	4	0	0	0	6	0	0	0	1	0	0	0	6	0	18	63	0	0	0	0
7:30 AM	0	1	2	1	0	0	2	0	0	0	2	0	0	1	2	2	13	51	0	0	0	0
7:45 AM	0	1	3	0	0	0	3	0	0	1	3	0	0	0	4	1	16	52	0	0	0	0
8:00 AM	0	1	2	0	0	0	4	0	0	0	0	0	0	1	7	1	16	43	0	0	0	0
8:15 AM	0	0	1	0	0	0	0	0	0	0	3	0	0	0	0	2	6	37	0	0	0	0
8:30 AM	0	1	5	0	0	0	1	1	0	0	2	1	0	1	2	0	14	41	0	0	0	0
8:45 AM	0	1	0	0	0	0	1	0	0	0	2	0	0	0	1	2	7	37	0	0	0	0
9:00 AM	0	0	2	0	0	0	3	0	0	0	2	0	0	0	3	0	10	36	0	0	0	0
9:15 AM	0	0	0	0	0	0	2	0	0	0	3	0	0	0	5	0	10	37	0	0	0	0
9:30 AM	0	0	1	1	0	0	0	0	0	0	2	0	0	0	3	3	10	35	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	2	0	0	1	0	0	0	2	1	6	35	0	0	0	0
10:00 AM	0	1	2	0	0	0	0	2	0	0	2	0	0	2	1	1	11	36	0	0	0	0
10:15 AM	0	1	0	0	0	0	0	1	0	0	3	1	0	0	2	0	8	34	0	0	0	0
10:30 AM	0	1	2	0	0	0	2	1	0	0	2	1	0	0	1	0	10	40	0	0	0	0
10:45 AM	0	0	1	0	0	0	1	1	0	0	0	0	0	1	3	0	7	42	0	0	0	0
11:00 AM	0	1	1	0	0	0	0	2	0	0	1	0	0	0	2	2	9	44	0	0	0	0
11:15 AM	0	4	2	0	0	0	2	1	0	0	1	0	0	1	3	0	14	48	1	0	0	0
11:30 AM	0	1	5	0	0	0	1	0	0	0	2	0	0	1	2	0	12	44	0	0	0	0
11:45 AM	0	0	1	0	0	0	0	1	0	0	3	0	0	0	4	0	9	46	0	0	0	0
12:00 PM	0	0	0	0	0	0	4	0	0	0	2	0	0	1	6	0	13	52	0	0	0	0
12:15 PM	0	0	1	0	0	0	3	0	0	0	3	0	0	0	3	0	10	52	0	0	0	0
12:30 PM	0	0	1	0	0	0	2	1	0	0	6	0	0	1	2	1	14	52	0	0	0	0
12:45 PM	0	1	1	0	0	1	0	0	0	0	5	0	0	2	4	1	15	54	0	0	0	0
1:00 PM	0	0	1	0	0	0	2	1	0	0	3	0	0	2	3	1	13	47	0	0	0	0
1:15 PM	0	0	1	0	0	0	1	1	0	0	1	1	0	1	4	0	10	54	0	0	0	0
1:30 PM	0	3	1	0	0	0	5	1	0	0	1	1	0	1	3	0	16	53	0	0	0	0
1:45 PM	0	1	1	0	0	0	0	0	0	0	3	0	0	1	0	2	8	62	0	0	0	0
2:00 PM	0	1	1	0	0	0	4	1	0	0	6	0	0	4	1	2	20	62	0	0	0	0
2:15 PM	0	0	0	0	0	0	3	0	0	0	2	0	0	0	2	2	9	51	0	0	0	0

2:30 PM	0	3	3	0	0	0	11	1	0	0	4	0	0	1	0	2	25	52	0	0	0	0
2:45 PM	0	1	0	0	0	0	2	2	0	0	1	0	0	0	0	2	8	42	0	0	0	0
3:00 PM	0	0	0	0	0	0	3	1	0	0	1	0	0	2	2	0	9	53	0	0	0	0
3:15 PM	0	1	1	0	0	0	0	0	0	0	6	0	0	1	0	1	10	60	0	0	0	0
3:30 PM	0	1	3	0	0	1	1	0	0	0	3	1	0	1	3	1	15	64	0	0	0	0
3:45 PM	0	7	0	0	0	0	0	0	0	0	7	0	0	1	2	2	19	76	0	0	0	0
4:00 PM	0	2	1	1	0	0	1	2	0	0	1	0	0	2	6	0	16	70	0	0	0	0
4:15 PM	0	4	3	0	0	0	0	1	0	0	4	0	0	2	0	0	14	70	0	0	0	0
4:30 PM	0	3	2	0	0	0	7	0	0	0	6	0	0	0	8	1	27	66	0	0	0	0
4:45 PM	0	0	0	0	0	1	4	0	0	0	3	0	0	1	3	1	13	52	0	0	0	0
5:00 PM	0	2	1	0	0	0	2	0	0	0	4	0	0	0	6	1	16	48	0	0	0	0
5:15 PM	0	1	0	0	0	0	0	1	0	0	0	0	0	1	7	0	10	40	0	0	0	0
5:30 PM	0	0	2	0	0	0	0	1	0	0	5	0	0	1	4	0	13	42	0	0	0	0
5:45 PM	0	2	2	0	0	0	0	1	0	0	2	0	0	1	1	0	9	40	0	0	0	0
6:00 PM	0	2	1	0	0	0	0	0	0	0	2	0	0	2	1	0	8	42	0	0	0	0
6:15 PM	0	1	2	0	0	0	0	0	0	0	4	0	1	0	4	0	12		0	0	0	0
6:30 PM	0	1	2	0	0	0	2	0	0	0	2	0	0	2	2	0	11		0	0	0	0
6:45 PM	0	0	2	0	0	1	3	0	0	1	0	0	0	0	4	0	11		0	0	0	0
Count Total	0	53	84	3	0	4	105	30	0	2	134	6	1	43	147	38	650		1	0	0	0
Peak Hour	0	16	6	1	0	0	8	3	0	0	18	0	0	5	16	3	76		0	0	0	0

APPENDIX C: EXISTING LEVEL OF SERVICE ANALYSIS

1: Frontier St & Tumbleweed Rd
Existing AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	162	215	8	18	0
Future Vol, veh/h	0	162	215	8	18	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	85	85	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	191	253	9	23	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	262	0	-	0	448	258
Stage 1	-	-	-	-	258	-
Stage 2	-	-	-	-	191	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1302	-	-	-	568	781
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	842	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1302	-	-	-	568	781
Mov Cap-2 Maneuver	-	-	-	-	568	-
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	842	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		11.6		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1302	-	-	-	568	
HCM Lane V/C Ratio	-	-	-	-	0.04	
HCM Ctrl Dly (s/v)	0	-	-	-	11.6	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

2: Battaglia Rd & Frontier St
Existing AM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	7.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	89	84	0	38	62	56	156	0	44	131	5
Future Vol, veh/h	8	89	84	0	38	62	56	156	0	44	131	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	225	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	80	85	85	80	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	105	99	0	45	73	70	184	0	55	154	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	613	591	157	640	594	184	160	0	0	184	0	0
Stage 1	267	267	-	324	324	-	-	-	-	-	-	-
Stage 2	346	324	-	316	270	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	405	420	888	388	418	859	1419	-	-	1391	-	-
Stage 1	738	688	-	689	650	-	-	-	-	-	-	-
Stage 2	670	650	-	695	686	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	302	383	888	235	382	859	1419	-	-	1391	-	-
Mov Cap-2 Maneuver	302	383	-	235	382	-	-	-	-	-	-	-
Stage 1	709	661	-	655	618	-	-	-	-	-	-	-
Stage 2	541	618	-	499	659	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	16.93	12.74	2.12	1.97
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1419	-	-	512 582	1391	-	-
HCM Lane V/C Ratio	0.049	-	-	0.416 0.202	0.04	-	-
HCM Ctrl Dly (s/v)	7.7	-	-	16.9 12.7	7.7	-	-
HCM Lane LOS	A	-	-	C B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	2 0.7	0.1	-	-

3: Battaglia Rd & 11 Mile Corner Rd Existing AM

HCM 7th AWSC

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	103	1	13	83	22	2	31	21	24	39	15
Future Vol, veh/h	33	103	1	13	83	22	2	31	21	24	39	15
Peak Hour Factor	0.85	0.85	0.80	0.85	0.85	0.85	0.80	0.80	0.80	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	39	121	1	15	98	26	3	39	26	28	46	18
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay, s/veh	9.4	8.5	8	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	4%	24%	0%	11%	31%
Vol Thru, %	57%	76%	0%	70%	50%
Vol Right, %	39%	0%	100%	19%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	54	136	1	118	78
LT Vol	2	33	0	13	24
Through Vol	31	103	0	83	39
RT Vol	21	0	1	22	15
Lane Flow Rate	68	160	1	139	92
Geometry Grp	2	5	5	4a	2
Degree of Util (X)	0.085	0.229	0.001	0.174	0.12
Departure Headway (Hd)	4.559	5.145	4.319	4.524	4.698
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	786	698	828	793	763
Service Time	2.589	2.873	2.048	2.554	2.725
HCM Lane V/C Ratio	0.087	0.229	0.001	0.175	0.121
HCM Control Delay, s/veh	8	9.4	7.1	8.5	8.4
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.3	0.9	0	0.6	0.4

4: 11 Mile Corner Rd & Houser Rd
Existing AM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	7	0	3	2	4	81	0	1	72	9
Future Vol, veh/h	10	0	7	0	3	2	4	81	0	1	72	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	0	9	0	4	3	5	95	0	1	85	11
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	199	197	90	192	202	95	95	0	0	95	0	0
Stage 1	92	92	-	105	105	-	-	-	-	-	-	-
Stage 2	107	105	-	87	98	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	760	699	968	768	694	961	1499	-	-	1499	-	-
Stage 1	915	818	-	901	809	-	-	-	-	-	-	-
Stage 2	899	809	-	921	814	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	751	696	968	758	691	961	1499	-	-	1499	-	-
Mov Cap-2 Maneuver	751	696	-	758	691	-	-	-	-	-	-	-
Stage 1	914	818	-	898	806	-	-	-	-	-	-	-
Stage 2	889	806	-	912	814	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Ctrl Dly, s/v	9.47		9.66			0.35			0.09			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	85	-	-	827	779	21	-	-				
HCM Lane V/C Ratio	0.003	-	-	0.026	0.008	0.001	-	-				
HCM Ctrl Dly (s/v)	7.4	0	-	9.5	9.7	7.4	0	-				
HCM Lane LOS	A	A	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

5: Tumbleweed Rd & Houser Rd
Existing AM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	11	1	0	15	0	1	6	0	2	19	4
Future Vol, veh/h	4	11	1	0	15	0	1	6	0	2	19	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	14	1	0	19	0	1	8	0	3	24	5
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	51	41	26	46	44	8	29	0	0	8	0	0
Stage 1	31	31	-	10	10	-	-	-	-	-	-	-
Stage 2	19	10	-	36	34	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	949	851	1049	956	848	1075	1584	-	-	1613	-	-
Stage 1	985	869	-	1011	887	-	-	-	-	-	-	-
Stage 2	1000	887	-	980	867	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	926	849	1049	937	846	1075	1584	-	-	1613	-	-
Mov Cap-2 Maneuver	926	849	-	937	846	-	-	-	-	-	-	-
Stage 1	984	868	-	1010	887	-	-	-	-	-	-	-
Stage 2	978	887	-	962	866	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Ctrl Dly, s/v	9.2		9.35			1.04			0.58			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	257	-	-	877	846	139	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.023	0.022	0.002	-	-				
HCM Ctrl Dly (s/v)	7.3	0	-	9.2	9.4	7.2	0	-				
HCM Lane LOS	A	A	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-				

1: Frontier St & Tumbleweed Rd
Existing PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	186	205	14	19	0
Future Vol, veh/h	0	186	205	14	19	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	85	85	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	219	241	16	24	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	258	0	0 468 249
Stage 1	-	-	- - 249 -
Stage 2	-	-	- - 219 -
Critical Hdwy	4.12	-	- - 6.42 6.22
Critical Hdwy Stg 1	-	-	- - 5.42 -
Critical Hdwy Stg 2	-	-	- - 5.42 -
Follow-up Hdwy	2.218	-	- - 3.518 3.318
Pot Cap-1 Maneuver	1307	-	- - 553 789
Stage 1	-	-	- - 792 -
Stage 2	-	-	- - 818 -
Platoon blocked, %		-	- -
Mov Cap-1 Maneuver	1307	-	- - 553 789
Mov Cap-2 Maneuver	-	-	- - 553 -
Stage 1	-	-	- - 792 -
Stage 2	-	-	- - 818 -

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1307	-	-	-	553
HCM Lane V/C Ratio	-	-	-	-	0.043
HCM Ctrl Dly (s/v)	0	-	-	-	11.8
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

2: Battaglia Rd & Frontier St
Existing PM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	8.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	17	48	87	0	81	50	68	157	0	53	156	3
Future Vol, veh/h	17	48	87	0	81	50	68	157	0	53	156	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	225	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	80	85	85	80	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	56	102	0	95	59	85	185	0	66	184	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	720	673	185	699	674	185	187	0	0	185	0	0
Stage 1	318	318	-	355	355	-	-	-	-	-	-	-
Stage 2	402	355	-	344	320	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	343	377	857	354	376	858	1387	-	-	1390	-	-
Stage 1	694	654	-	663	630	-	-	-	-	-	-	-
Stage 2	625	630	-	671	653	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	211	337	857	236	336	858	1387	-	-	1390	-	-
Mov Cap-2 Maneuver	211	337	-	236	336	-	-	-	-	-	-	-
Stage 1	660	623	-	622	591	-	-	-	-	-	-	-
Stage 2	458	591	-	512	621	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	17.36		17.63		2.45		2.02	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1387	-	-	468 438	1390	-	-
HCM Lane V/C Ratio	0.061	-	-	0.382 0.352	0.048	-	-
HCM Ctrl Dly (s/v)	7.8	-	-	17.4 17.6	7.7	-	-
HCM Lane LOS	A	-	-	C C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	1.8 1.6	0.2	-	-

3: Battaglia Rd & 11 Mile Corner Rd Existing PM

HCM 7th AWSC

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	89	1	15	101	18	2	24	19	29	35	31
Future Vol, veh/h	12	89	1	15	101	18	2	24	19	29	35	31
Peak Hour Factor	0.85	0.85	0.80	0.85	0.85	0.85	0.80	0.80	0.80	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	105	1	18	119	21	3	30	24	34	41	36
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay, s/veh	8.9	8.7	7.9	8.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	4%	12%	0%	11%	31%
Vol Thru, %	53%	88%	0%	75%	37%
Vol Right, %	42%	0%	100%	13%	33%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	45	101	1	134	95
LT Vol	2	12	0	15	29
Through Vol	24	89	0	101	35
RT Vol	19	0	1	18	31
Lane Flow Rate	56	119	1	158	112
Geometry Grp	2	5	5	4a	2
Degree of Util (X)	0.07	0.169	0.002	0.198	0.141
Departure Headway (Hd)	4.494	5.113	4.35	4.516	4.535
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	797	702	823	795	790
Service Time	2.525	2.84	2.077	2.543	2.563
HCM Lane V/C Ratio	0.07	0.17	0.001	0.199	0.142
HCM Control Delay, s/veh	7.9	8.9	7.1	8.7	8.3
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.2	0.6	0	0.7	0.5

4: 11 Mile Corner Rd & Houser Rd
Existing PM

HCM 7th TWSC

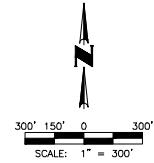
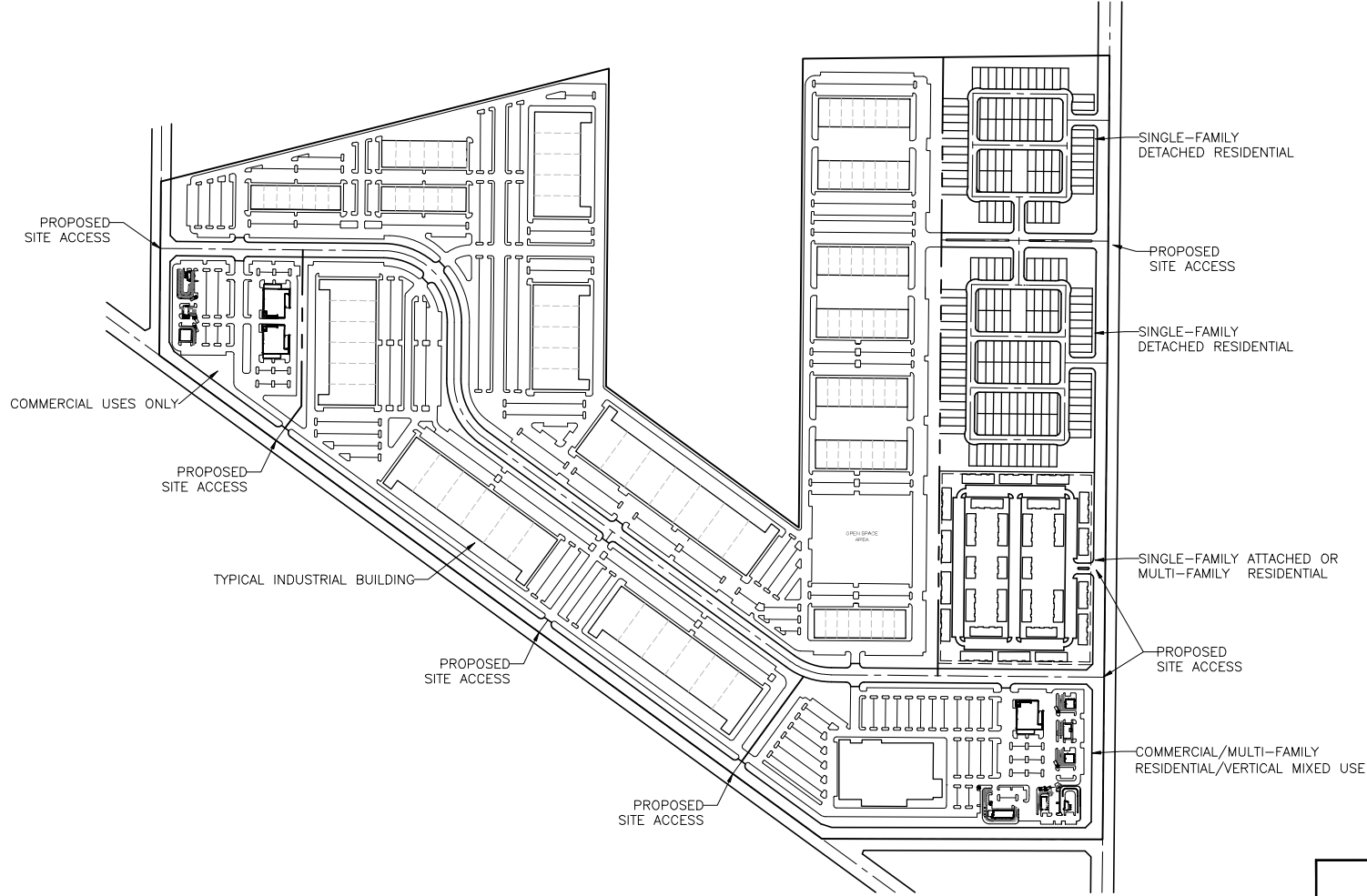
Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	1	4	3	2	1	6	52	0	1	83	7
Future Vol, veh/h	5	1	4	3	2	1	6	52	0	1	83	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	1	5	4	3	1	8	65	0	1	98	8
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	185	184	102	181	188	65	106	0	0	65	0	0
Stage 1	104	104	-	80	80	-	-	-	-	-	-	-
Stage 2	81	80	-	101	108	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	775	710	953	781	706	999	1485	-	-	1537	-	-
Stage 1	902	809	-	929	828	-	-	-	-	-	-	-
Stage 2	927	828	-	906	806	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	767	706	953	771	702	999	1485	-	-	1537	-	-
Mov Cap-2 Maneuver	767	706	-	771	702	-	-	-	-	-	-	-
Stage 1	901	808	-	924	824	-	-	-	-	-	-	-
Stage 2	918	824	-	899	805	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Ctrl Dly, s/v	9.43		9.69			0.77			0.08			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	186	-	-	824	775	19	-	-				
HCM Lane V/C Ratio	0.005	-	-	0.015	0.01	0.001	-	-				
HCM Ctrl Dly (s/v)	7.4	0	-	9.4	9.7	7.3	0	-				
HCM Lane LOS	A	A	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-				

5: Tumbleweed Rd & Houser Rd
Existing PM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	6	1	1	12	3	0	14	0	5	17	2
Future Vol, veh/h	9	6	1	1	12	3	0	14	0	5	17	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	8	1	1	15	4	0	18	0	6	21	3
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	60	53	23	55	54	18	24	0	0	18	0	0
Stage 1	35	35	-	18	18	-	-	-	-	-	-	-
Stage 2	25	18	-	38	36	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	936	839	1054	943	837	1061	1591	-	-	1599	-	-
Stage 1	981	866	-	1002	881	-	-	-	-	-	-	-
Stage 2	993	881	-	978	865	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	912	835	1054	929	834	1061	1591	-	-	1599	-	-
Mov Cap-2 Maneuver	912	835	-	929	834	-	-	-	-	-	-	-
Stage 1	977	862	-	1002	881	-	-	-	-	-	-	-
Stage 2	972	881	-	964	861	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Ctrl Dly, s/v	9.14		9.21			0			1.51			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1591	-	-	889	875	367	-	-				
HCM Lane V/C Ratio	-	-	-	0.022	0.023	0.004	-	-				
HCM Ctrl Dly (s/v)	0	-	-	9.1	9.2	7.3	0	-				
HCM Lane LOS	A	-	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-				

APPENDIX D: SITE PLAN



CONCEPTUAL SITE PLAN

TES ELOY PAD
ELOY, ARIZONA

PRELIMINARY

Civil Contact: JULIE VERMILLION
Civil Project # D15-00554-01

CONCEPT
SITE PLAN
SHEET
01 OF 01

NO.	REVISION	DATE
1	LAND USES AND OPEN SPACES ADJUSTED PER COMMENTS	10/15/2025

APPENDIX E: TRIP GENERATION WORKSHEETS

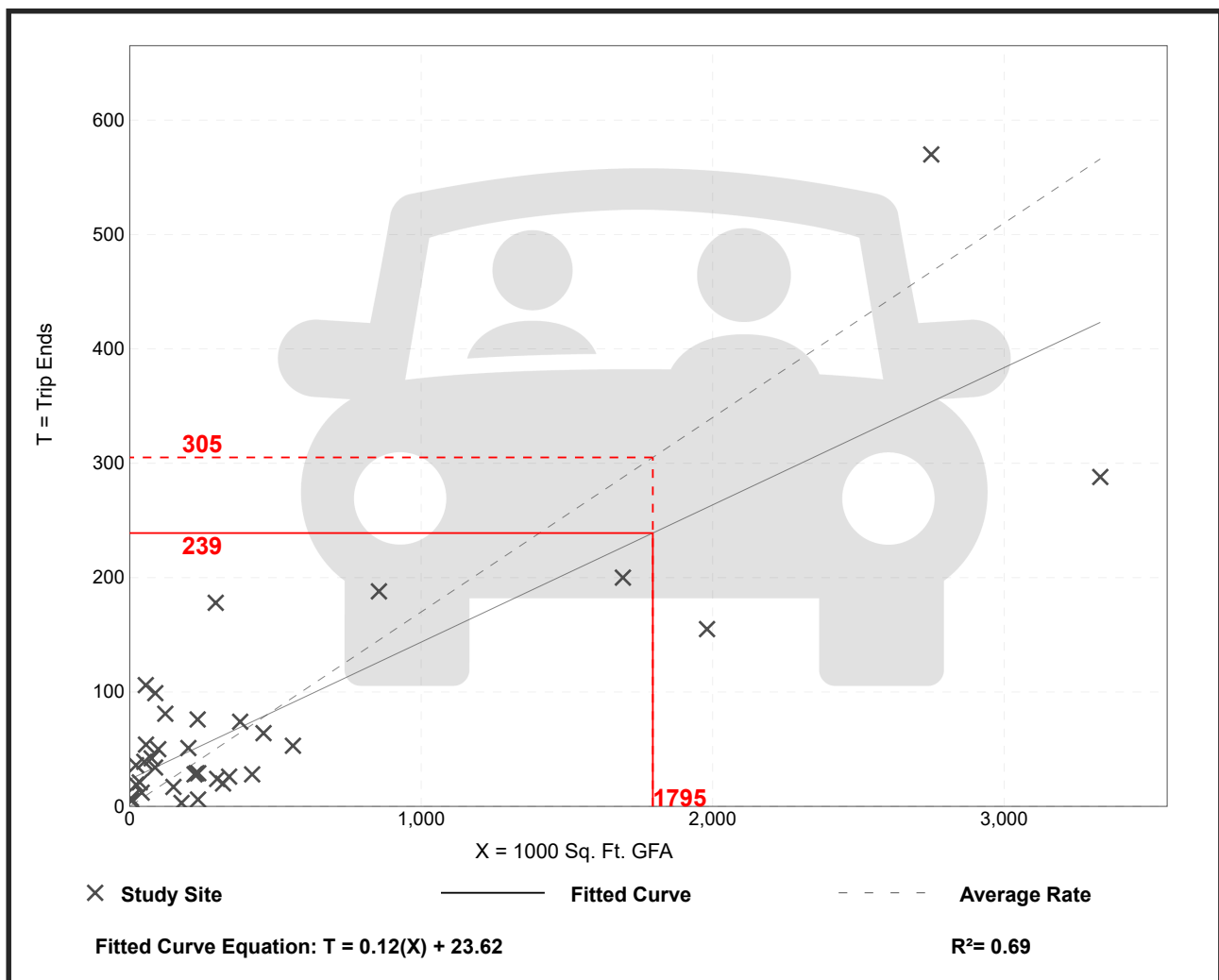
Warehousing (150)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 7 and 9 a.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 36
 Avg. 1000 Sq. Ft. GFA: 448
 Directional Distribution: 77% entering, 23% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.17	0.02 - 1.93	0.19

Data Plot and Equation



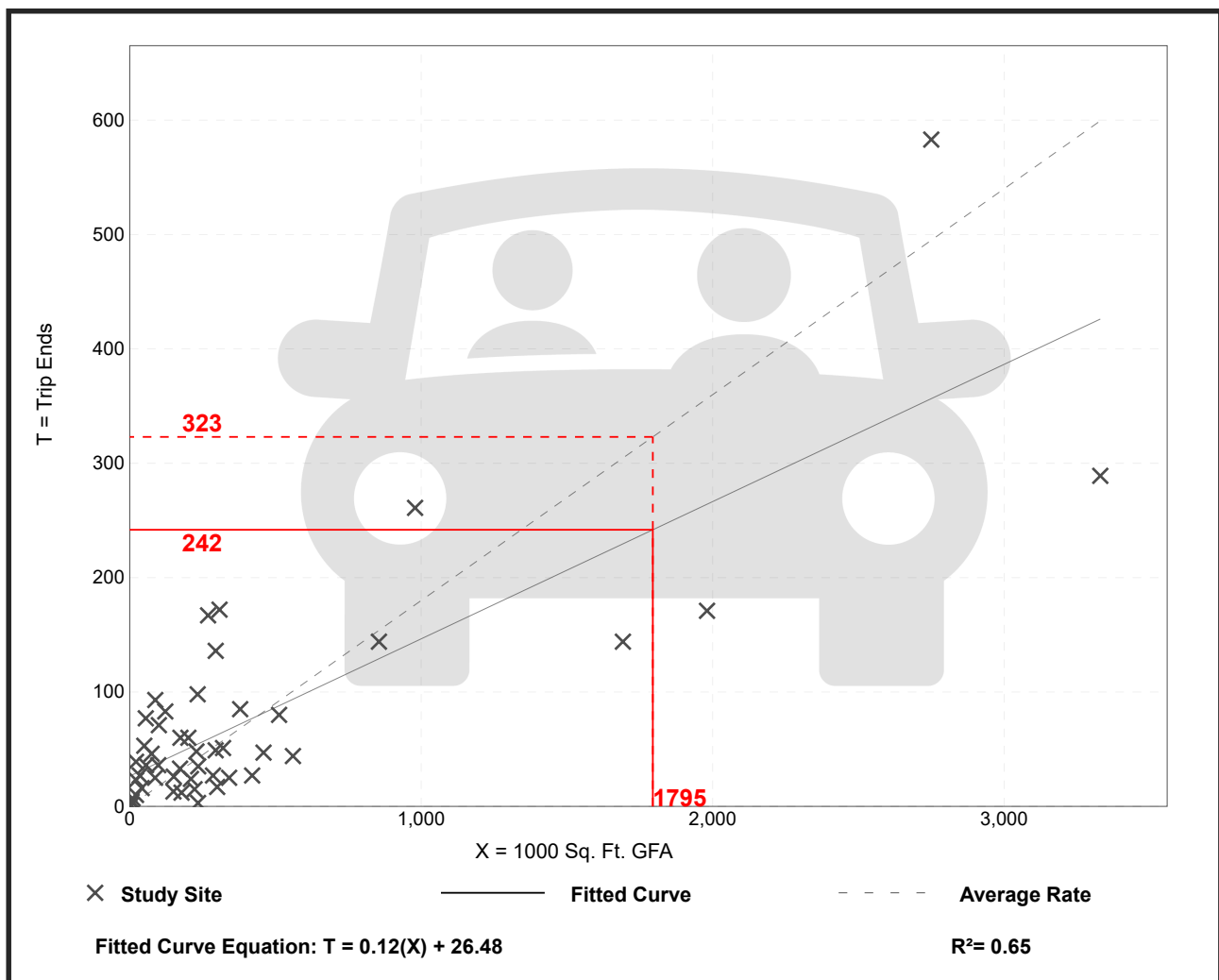
Warehousing (150)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 4 and 6 p.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 49
 Avg. 1000 Sq. Ft. GFA: 400
 Directional Distribution: 28% entering, 72% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.18	0.01 - 1.80	0.18

Data Plot and Equation



Warehousing (150)

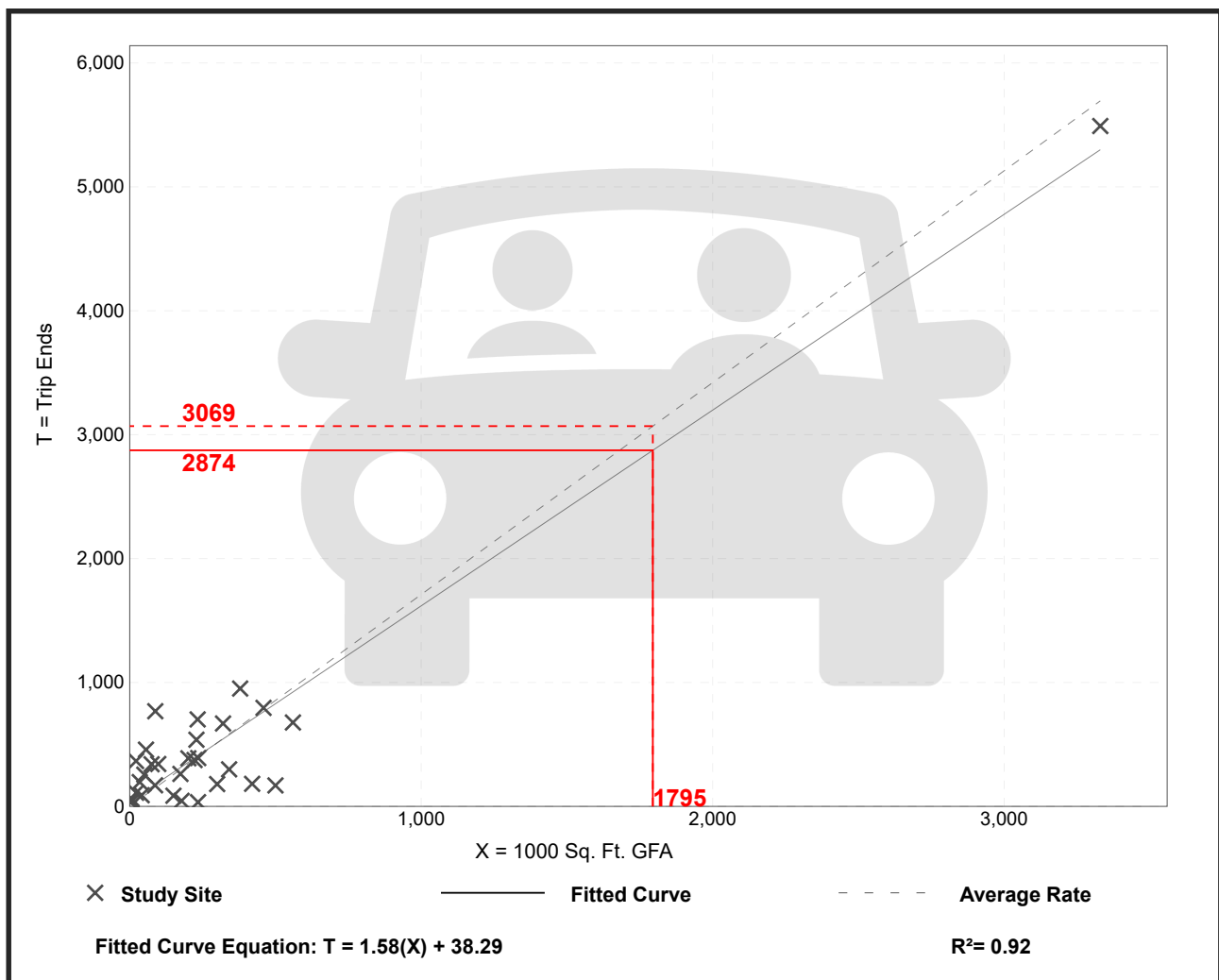
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 31
Avg. 1000 Sq. Ft. GFA: 292
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.71	0.15 - 16.93	1.48

Data Plot and Equation



Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 192

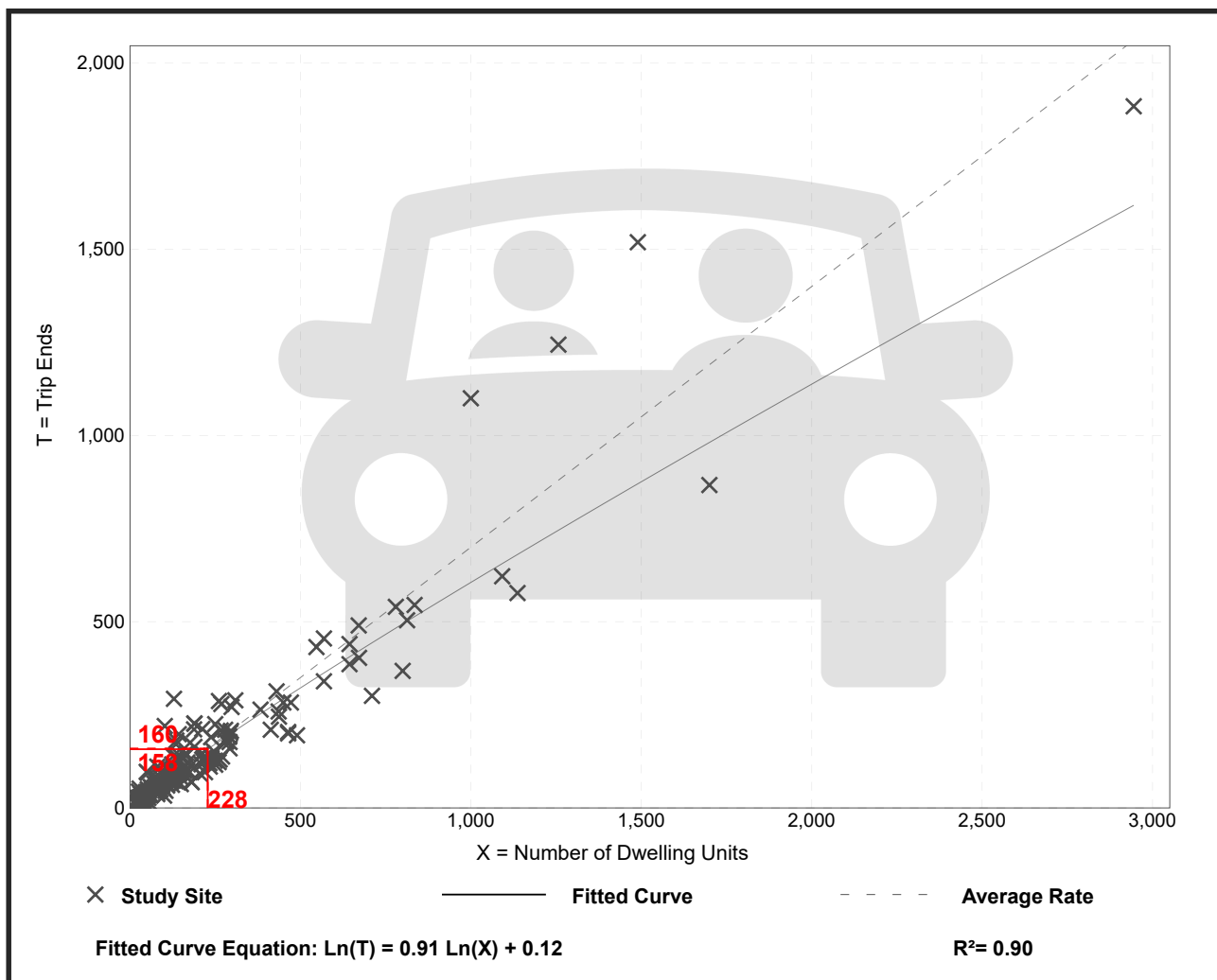
Avg. Num. of Dwelling Units: 226

Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.27 - 2.27	0.24

Data Plot and Equation



Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 208

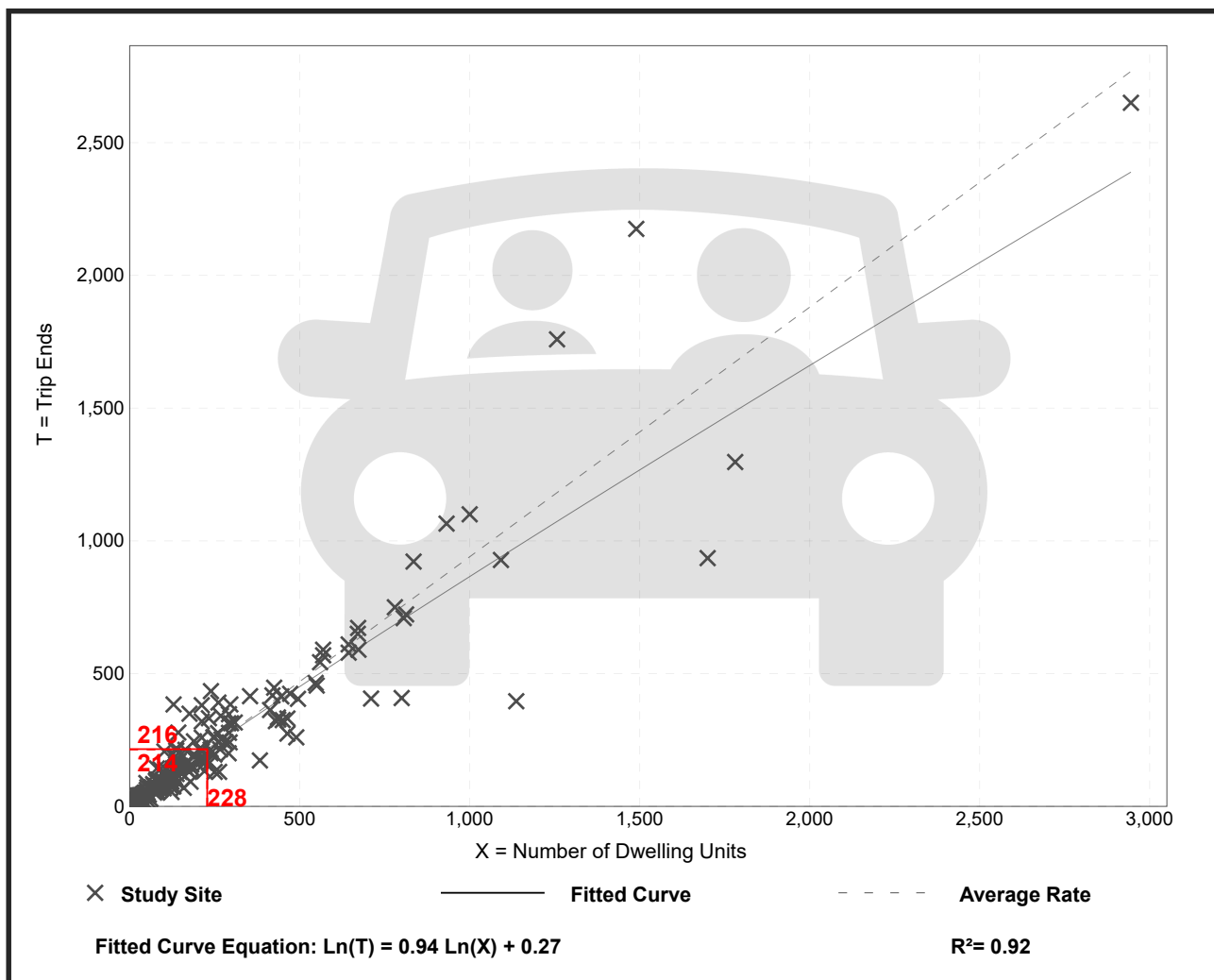
Avg. Num. of Dwelling Units: 248

Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.94	0.35 - 2.98	0.31

Data Plot and Equation



Single-Family Detached Housing (210)

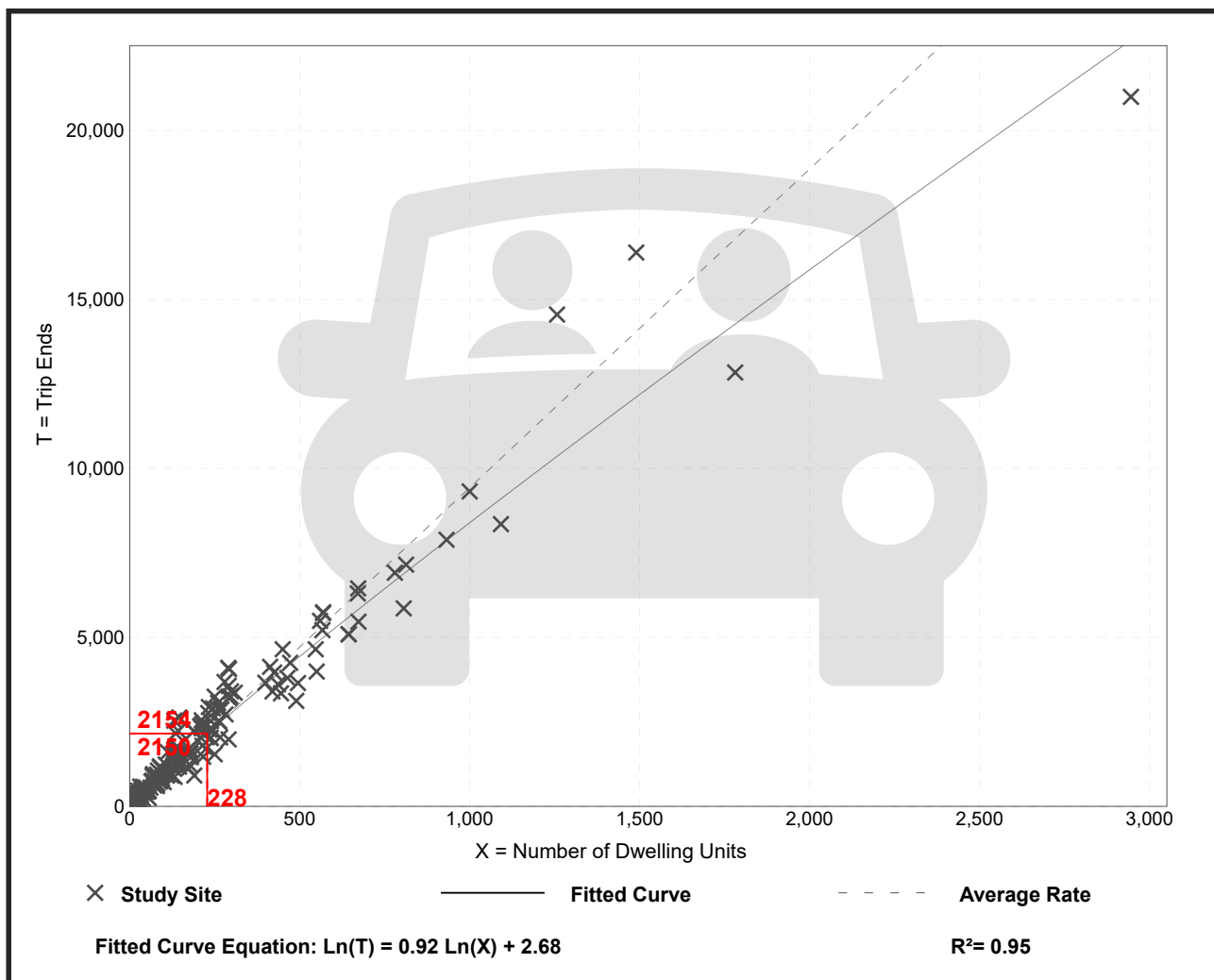
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 174
Avg. Num. of Dwelling Units: 246
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.43	4.45 - 22.61	2.13

Data Plot and Equation



Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 49

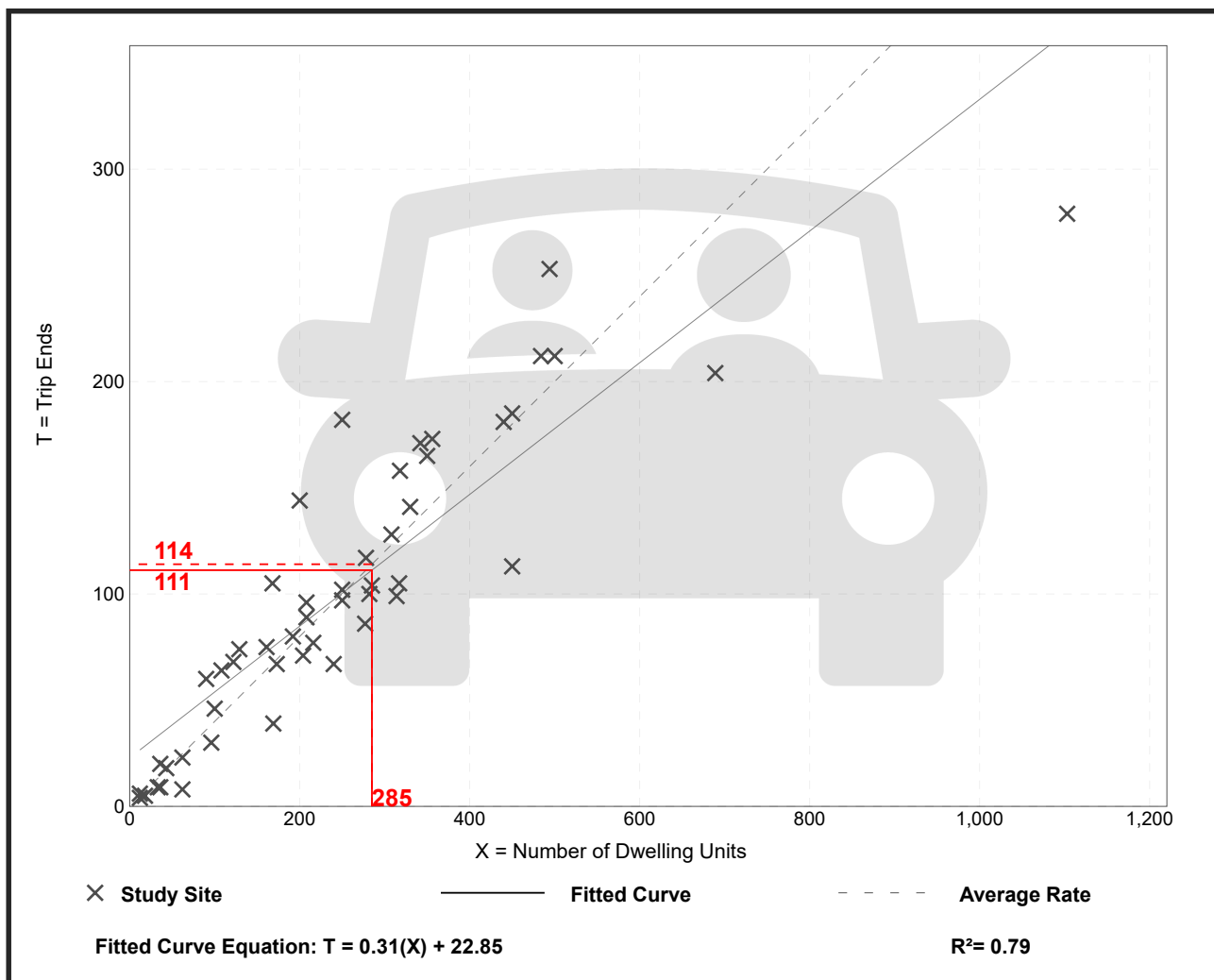
Avg. Num. of Dwelling Units: 249

Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.40	0.13 - 0.73	0.12

Data Plot and Equation



Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 59

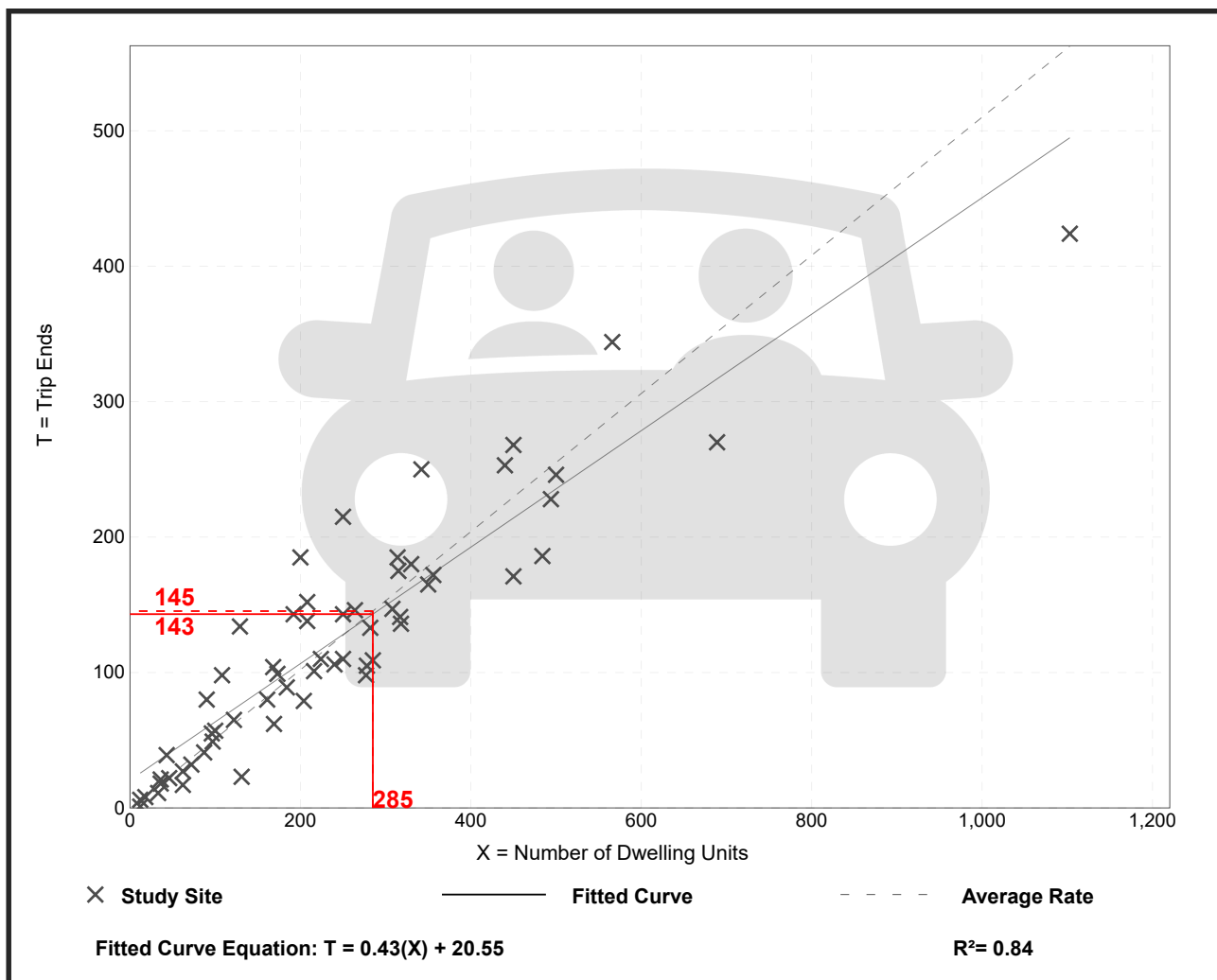
Avg. Num. of Dwelling Units: 241

Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.08 - 1.04	0.15

Data Plot and Equation



Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

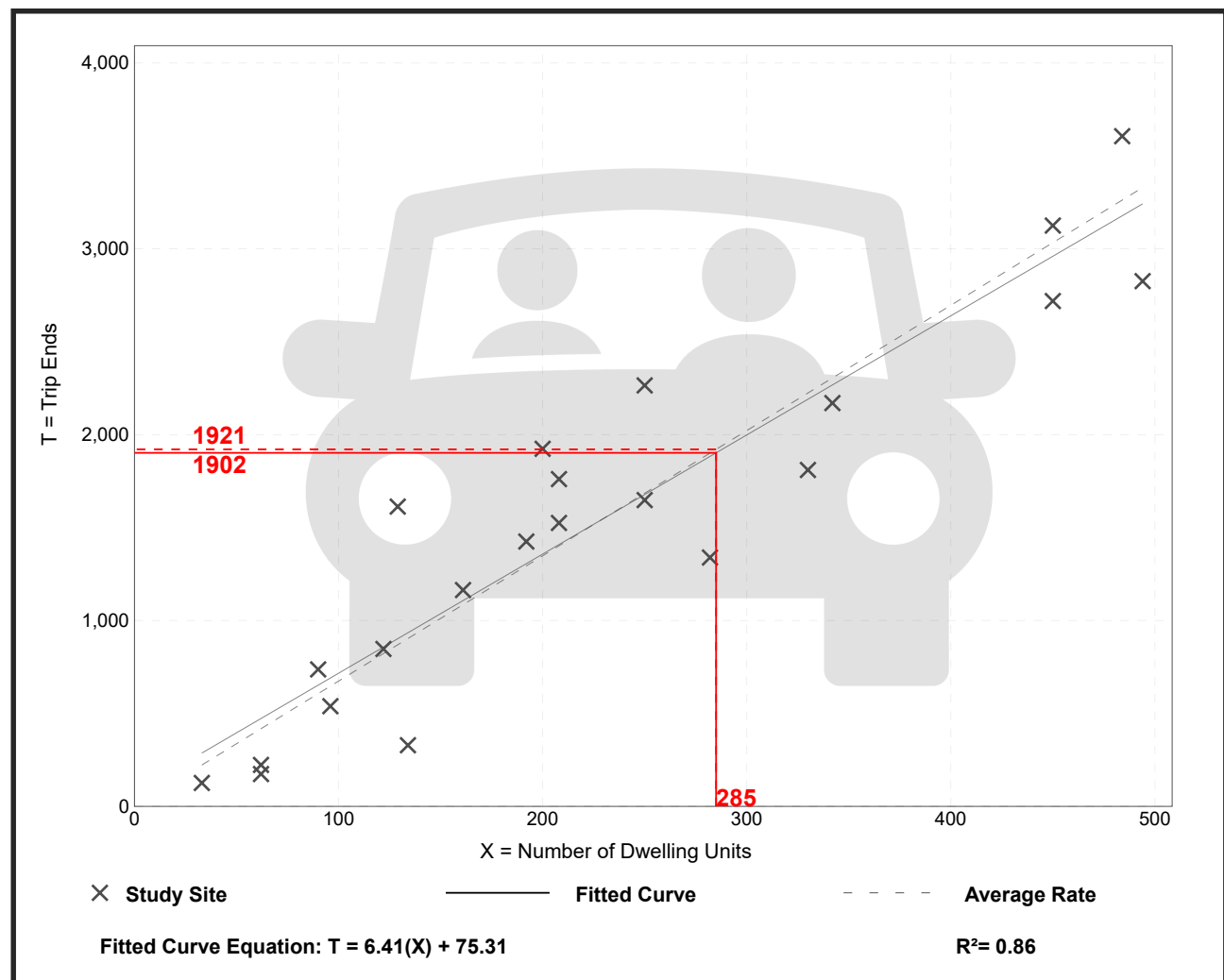
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 22
Avg. Num. of Dwelling Units: 229
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.74	2.46 - 12.50	1.79

Data Plot and Equation



Multifamily Housing (Mid-Rise) Not Close to Rail Transit (221)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 30

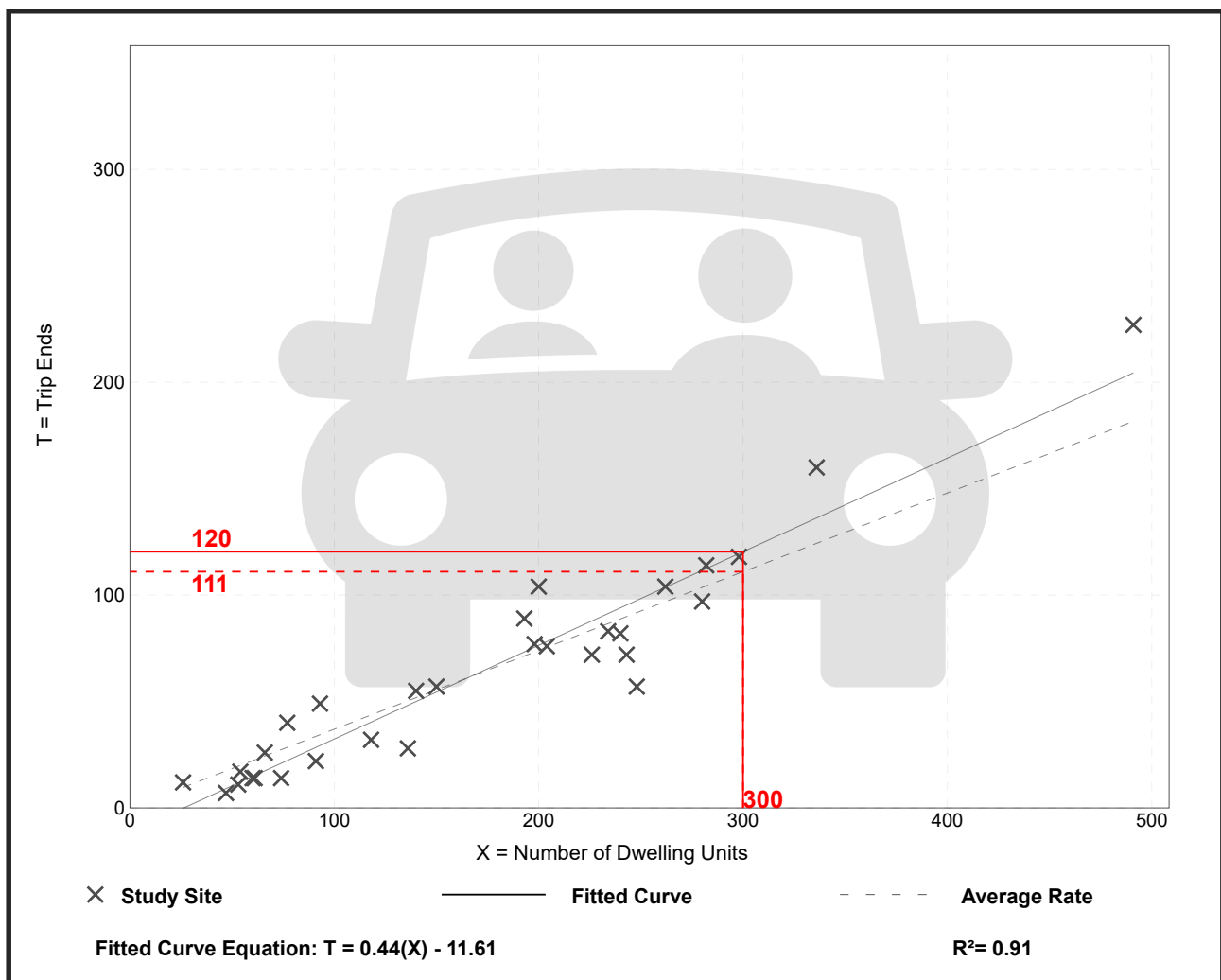
Avg. Num. of Dwelling Units: 173

Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.37	0.15 - 0.53	0.09

Data Plot and Equation



Multifamily Housing (Mid-Rise) Not Close to Rail Transit (221)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 31

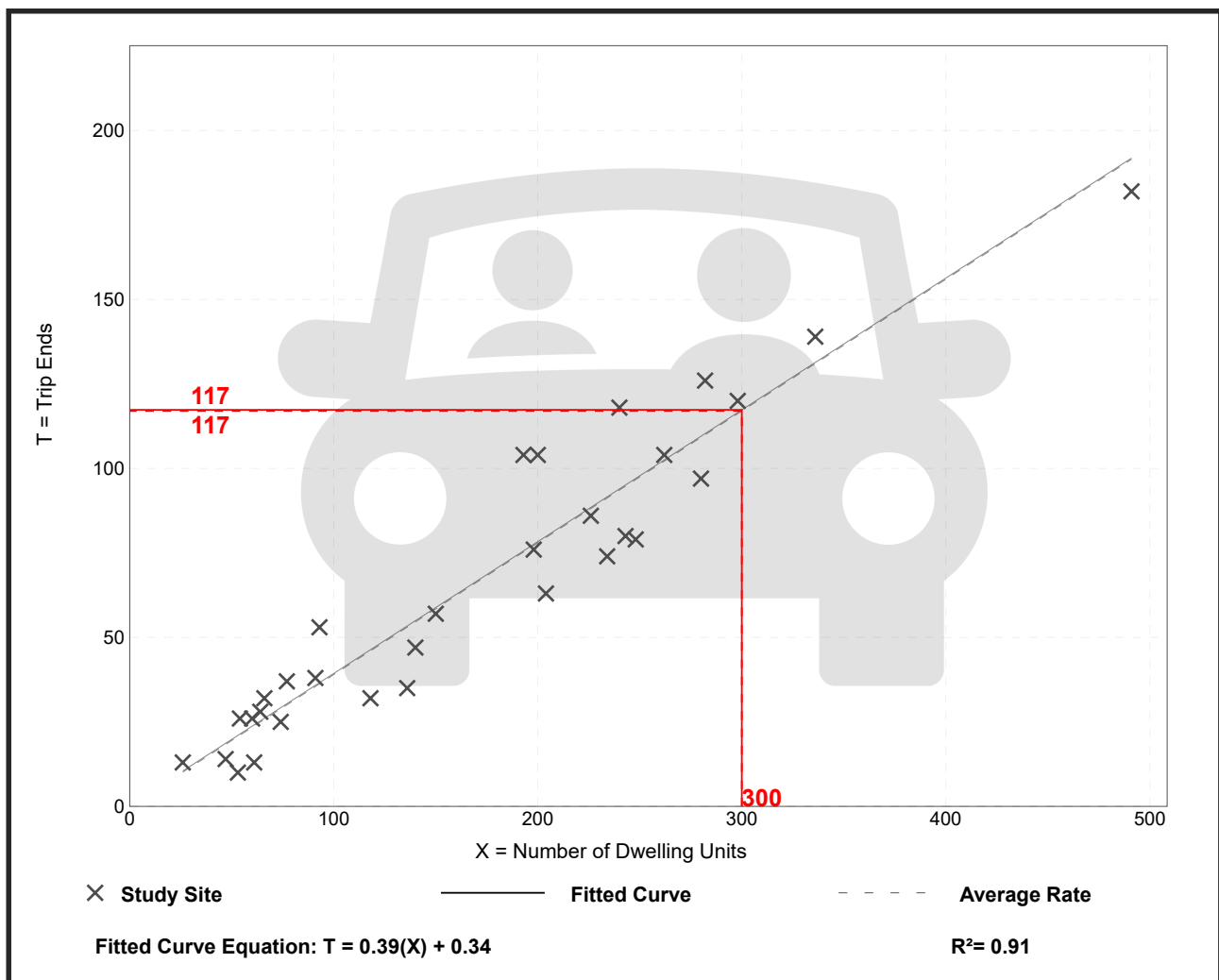
Avg. Num. of Dwelling Units: 169

Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.39	0.19 - 0.57	0.08

Data Plot and Equation



Multifamily Housing (Mid-Rise) Not Close to Rail Transit (221)

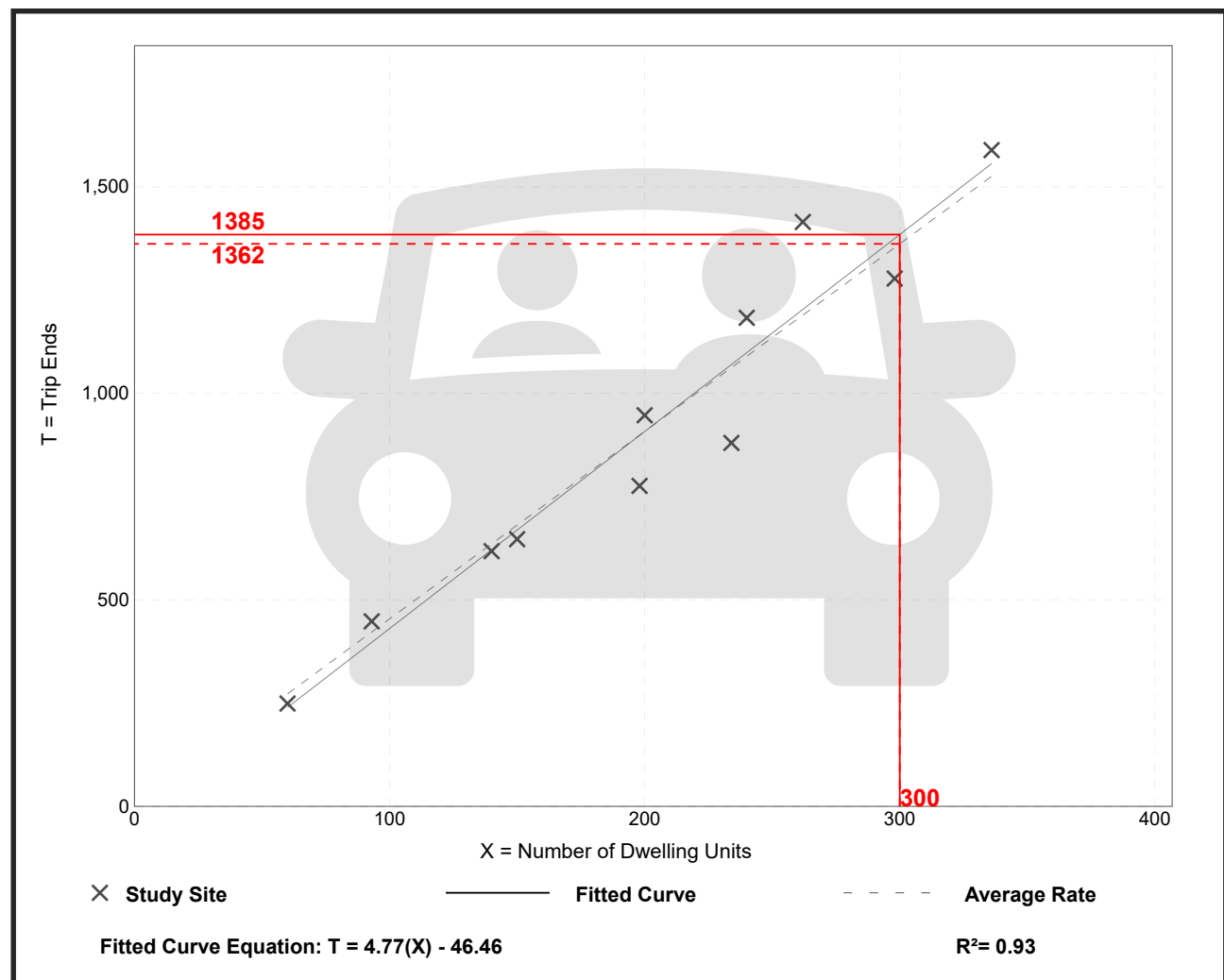
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 11
Avg. Num. of Dwelling Units: 201
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
4.54	3.76 - 5.40	0.51

Data Plot and Equation



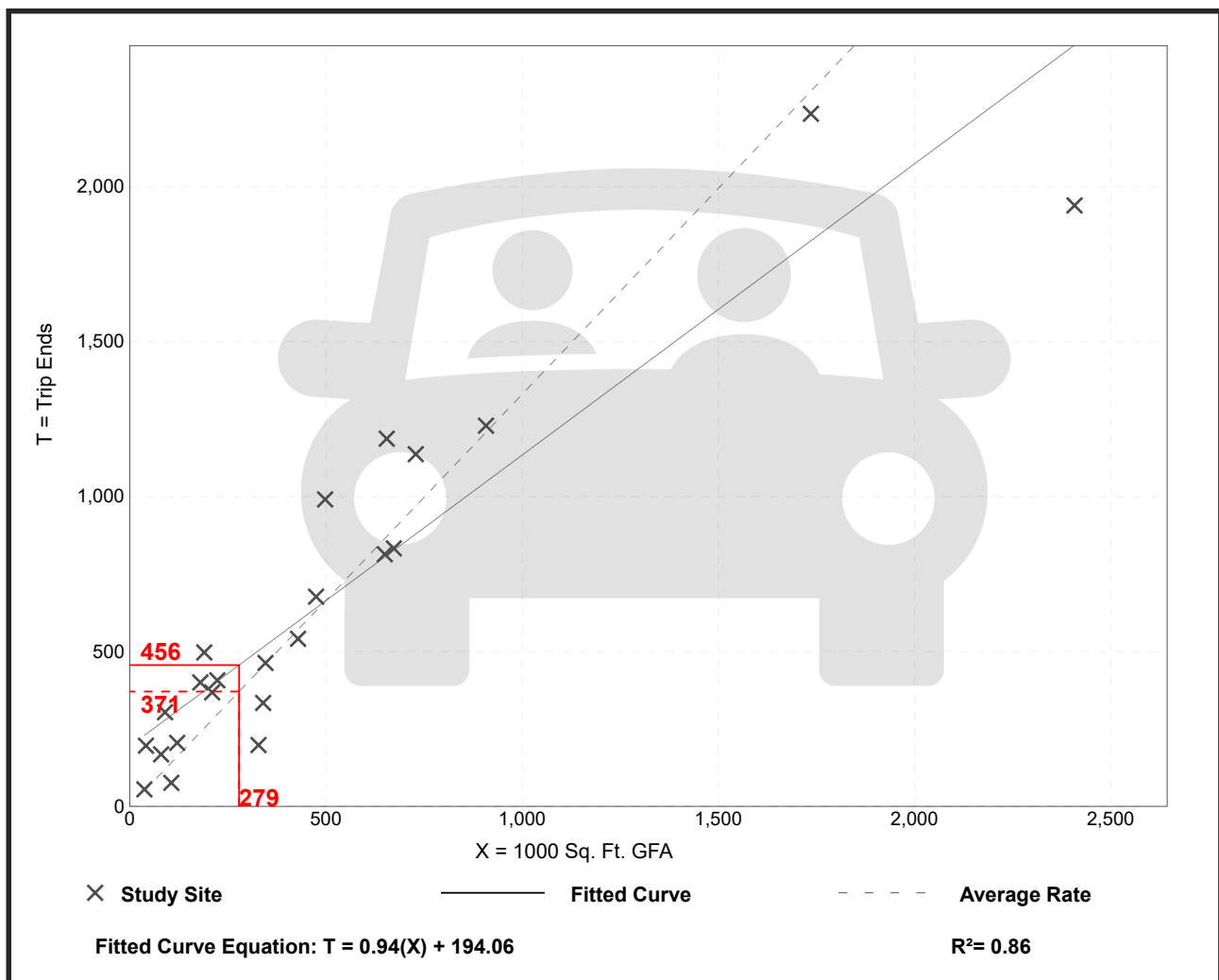
Office Park (750)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 7 and 9 a.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 23
 Avg. 1000 Sq. Ft. GFA: 498
 Directional Distribution: 89% entering, 11% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.33	0.60 - 4.74	0.51

Data Plot and Equation



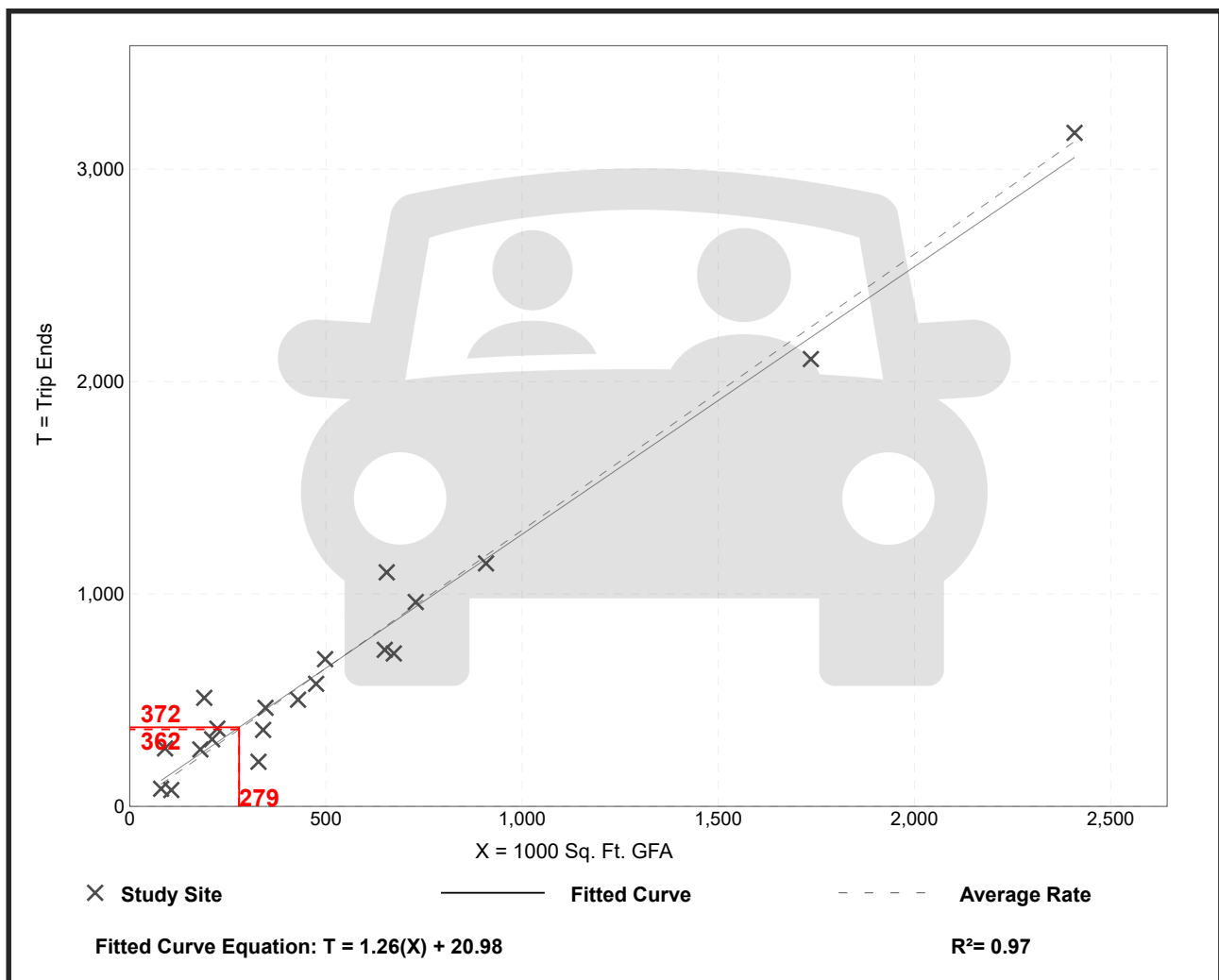
Office Park (750)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 4 and 6 p.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 20
 Avg. 1000 Sq. Ft. GFA: 563
 Directional Distribution: 14% entering, 86% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.30	0.64 - 3.03	0.32

Data Plot and Equation



Office Park (750)

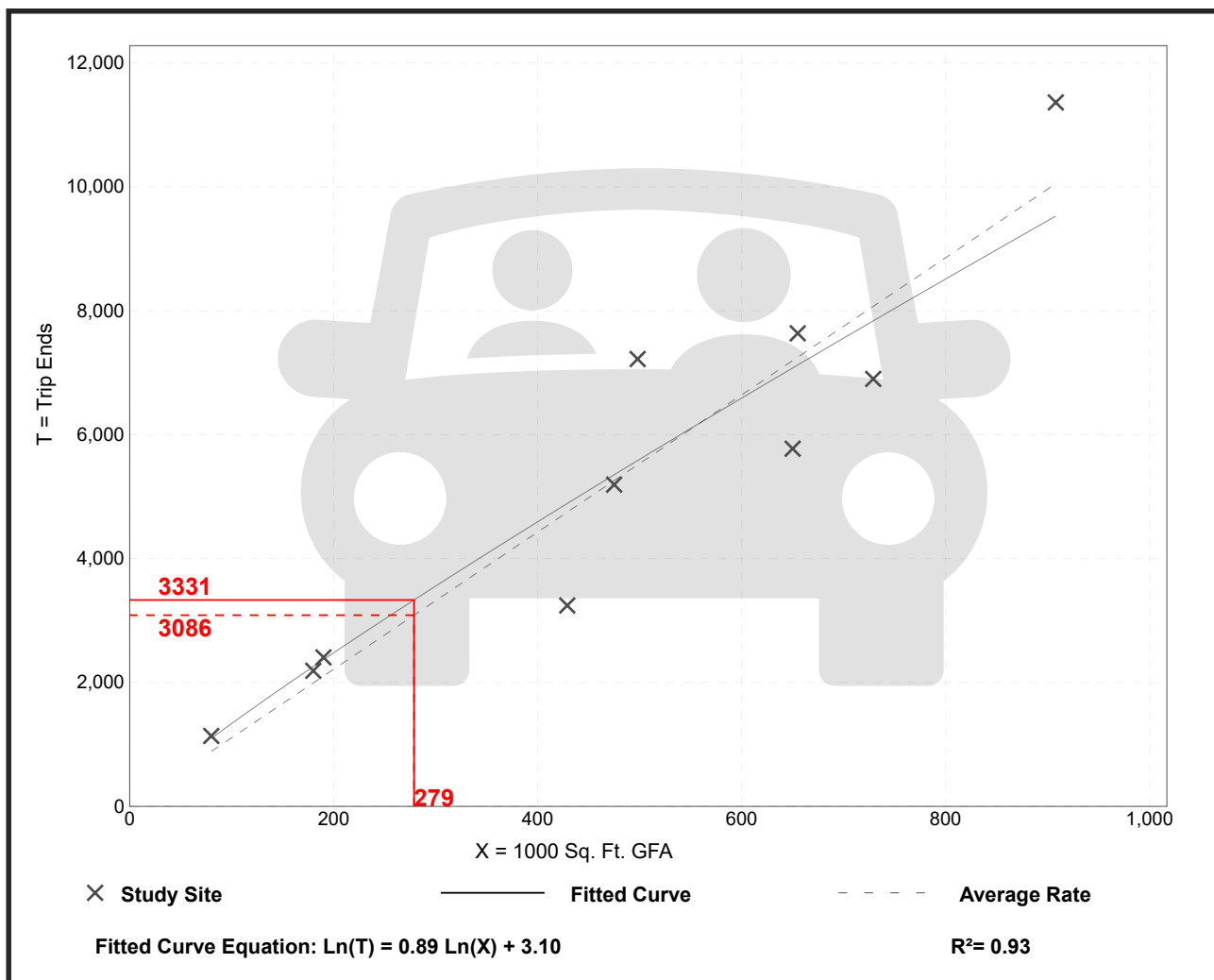
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 10
Avg. 1000 Sq. Ft. GFA: 479
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
11.07	7.56 - 14.50	2.14

Data Plot and Equation



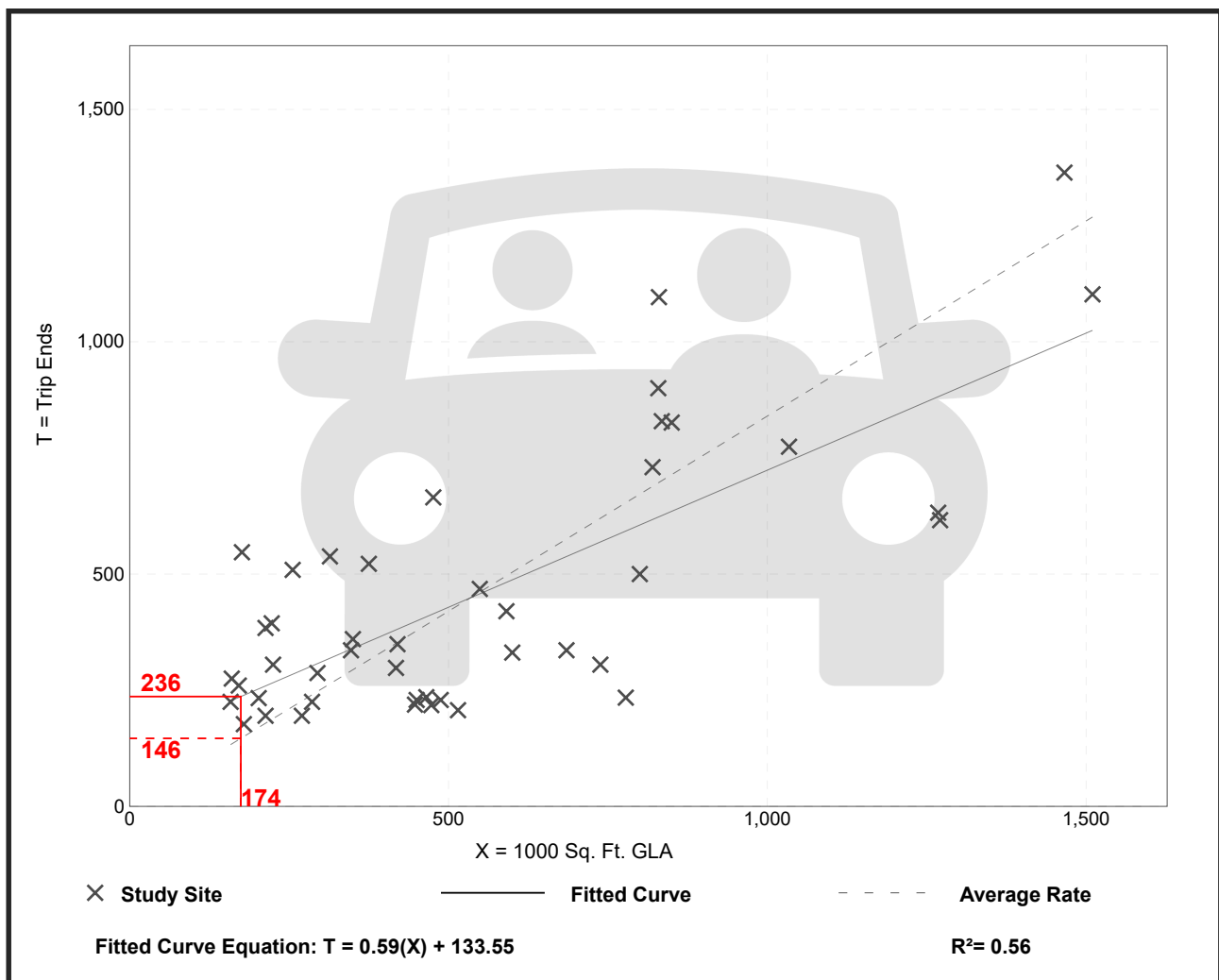
Shopping Center (>150k) (820)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 7 and 9 a.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 44
 Avg. 1000 Sq. Ft. GLA: 546
 Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
0.84	0.30 - 3.11	0.42

Data Plot and Equation



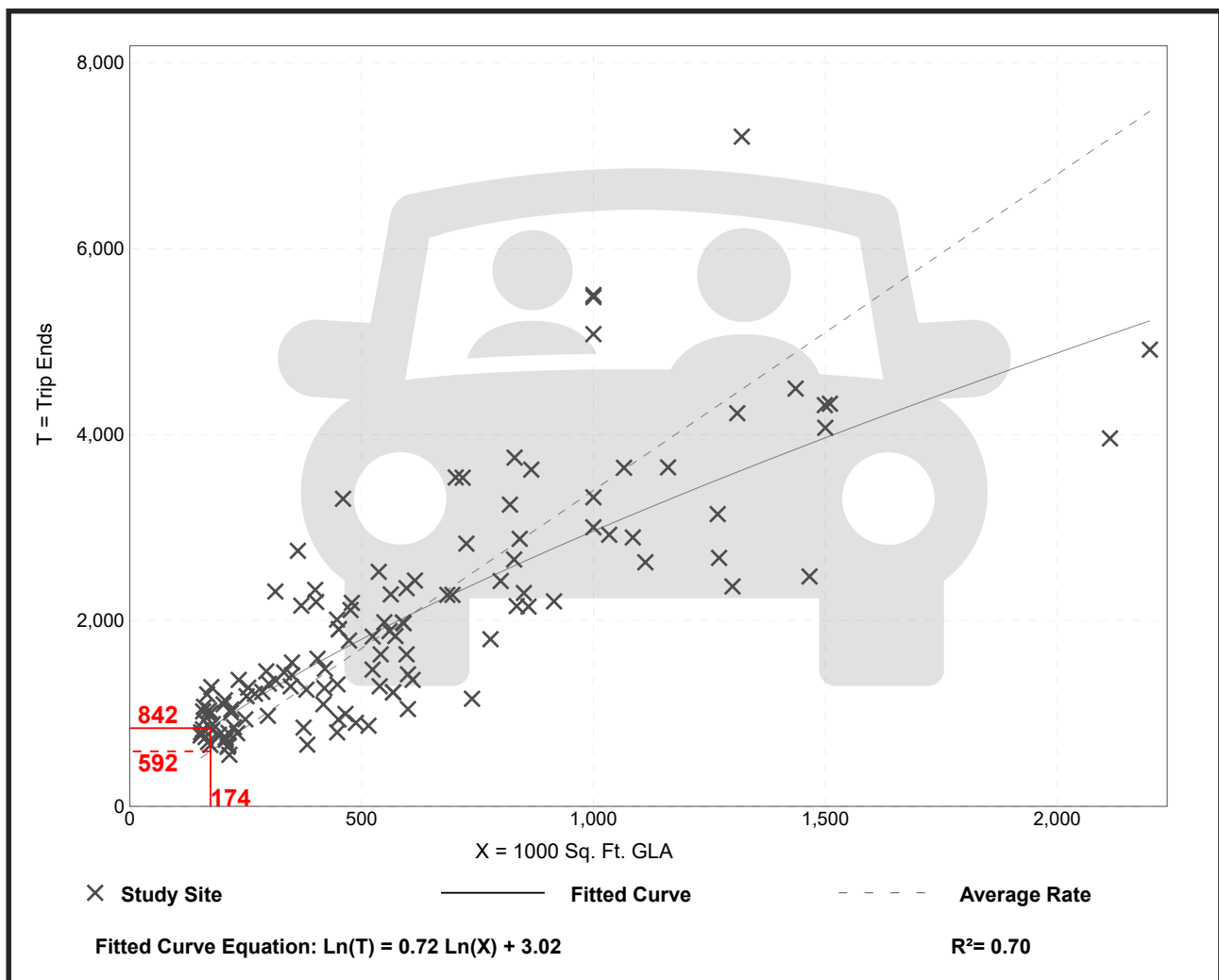
Shopping Center (>150k) (820)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 4 and 6 p.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 126
 Avg. 1000 Sq. Ft. GLA: 581
 Directional Distribution: 48% entering, 52% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
3.40	1.57 - 7.58	1.26

Data Plot and Equation



Shopping Center (>150k) (820)

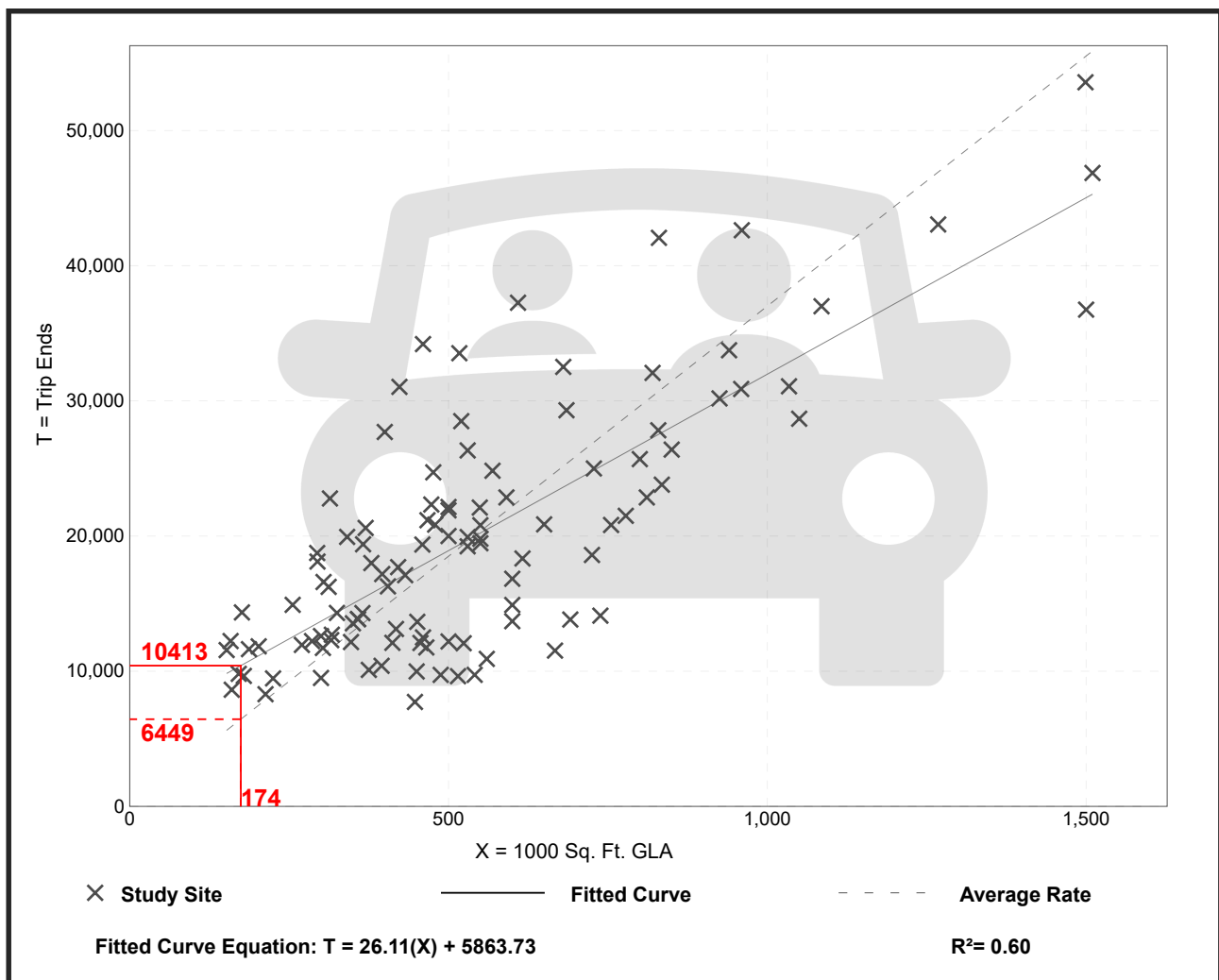
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 108
Avg. 1000 Sq. Ft. GLA: 538
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
37.01	17.27 - 81.53	12.79

Data Plot and Equation



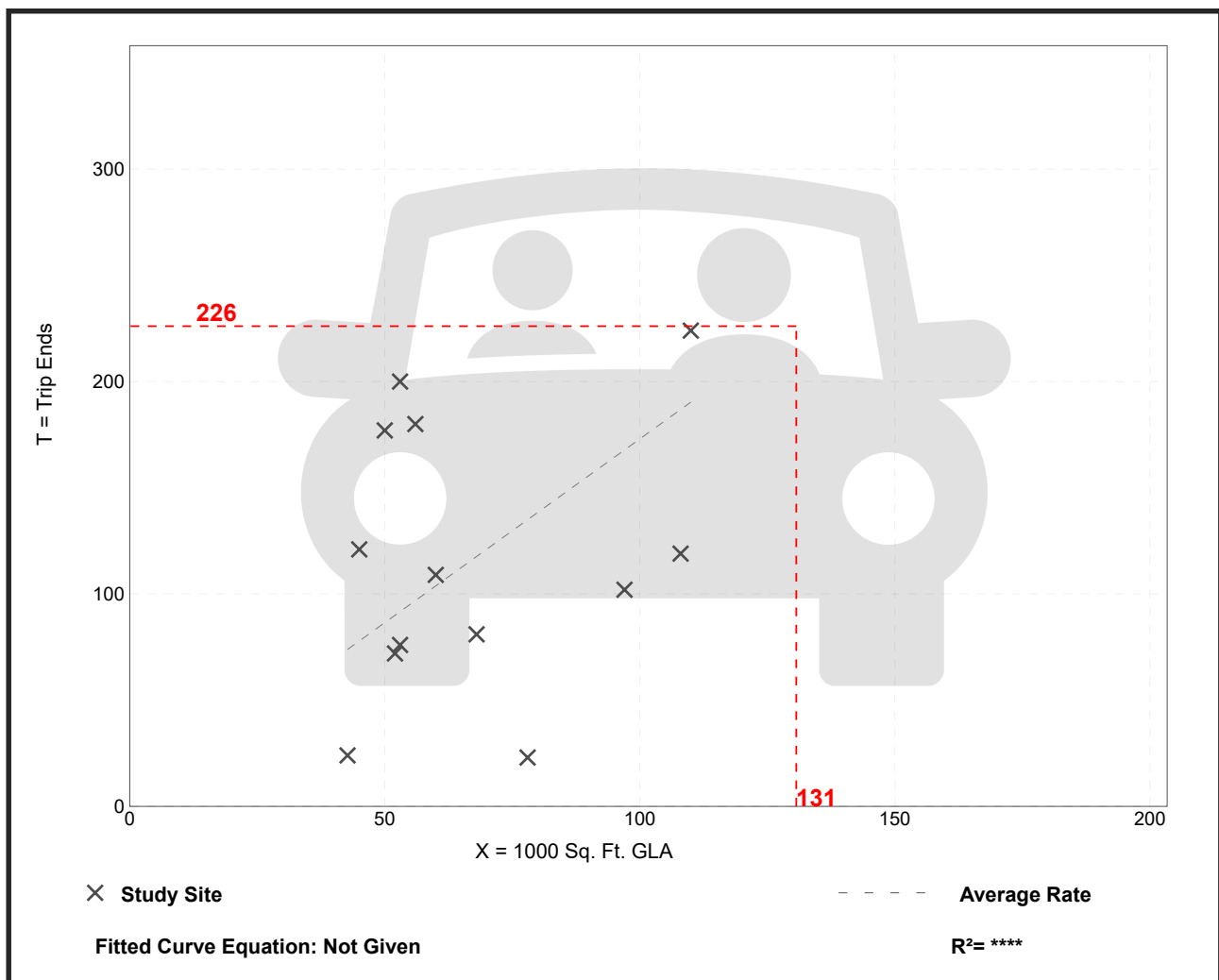
Shopping Plaza (40-150k) - Supermarket - No (821)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 13
Avg. 1000 Sq. Ft. GLA: 67
Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
1.73	0.29 - 3.77	1.06

Data Plot and Equation



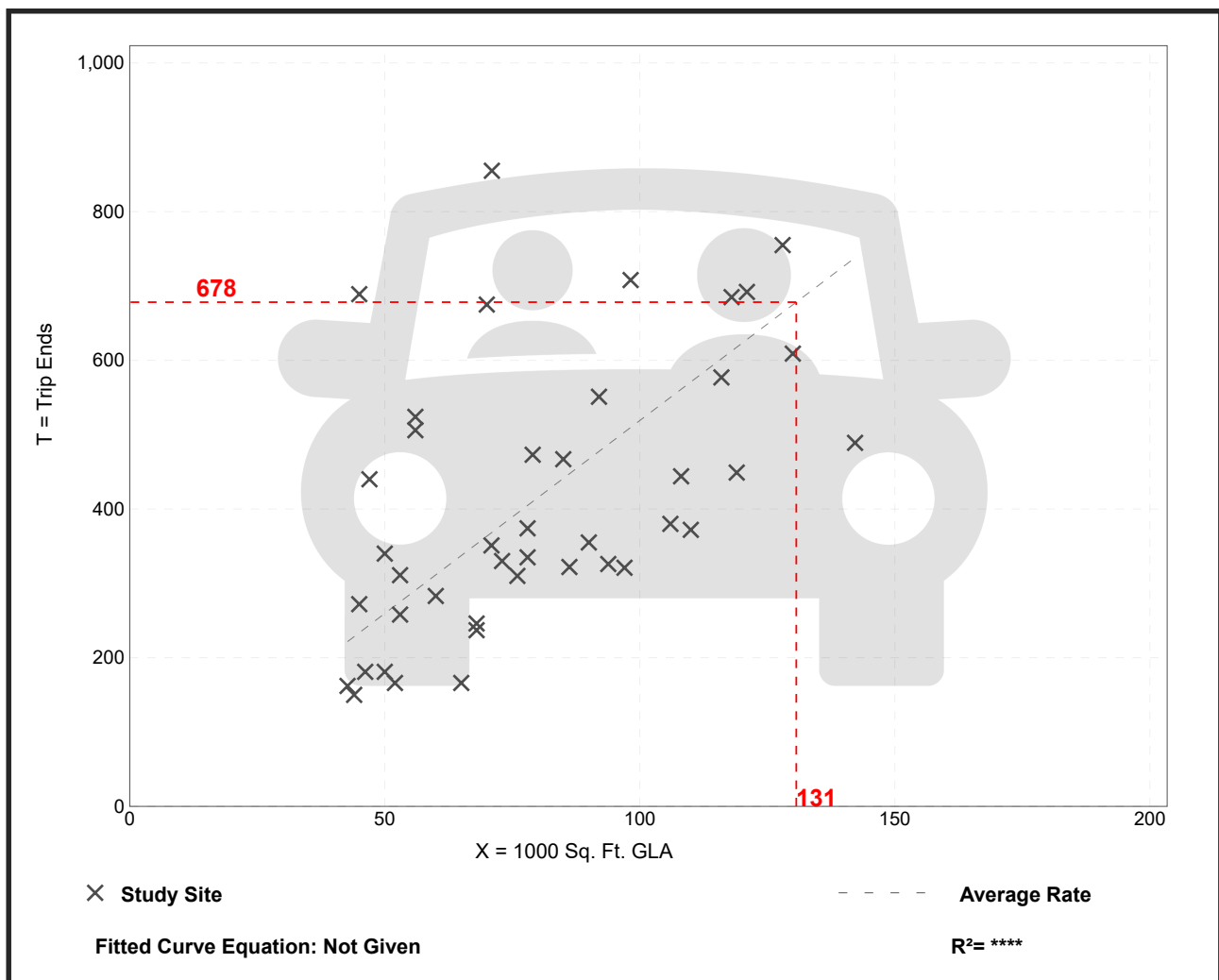
Shopping Plaza (40-150k) - Supermarket - No (821)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 42
Avg. 1000 Sq. Ft. GLA: 79
Directional Distribution: 49% entering, 51% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
5.19	2.55 - 15.31	2.28

Data Plot and Equation



Shopping Plaza (40-150k) - Supermarket - No (821)

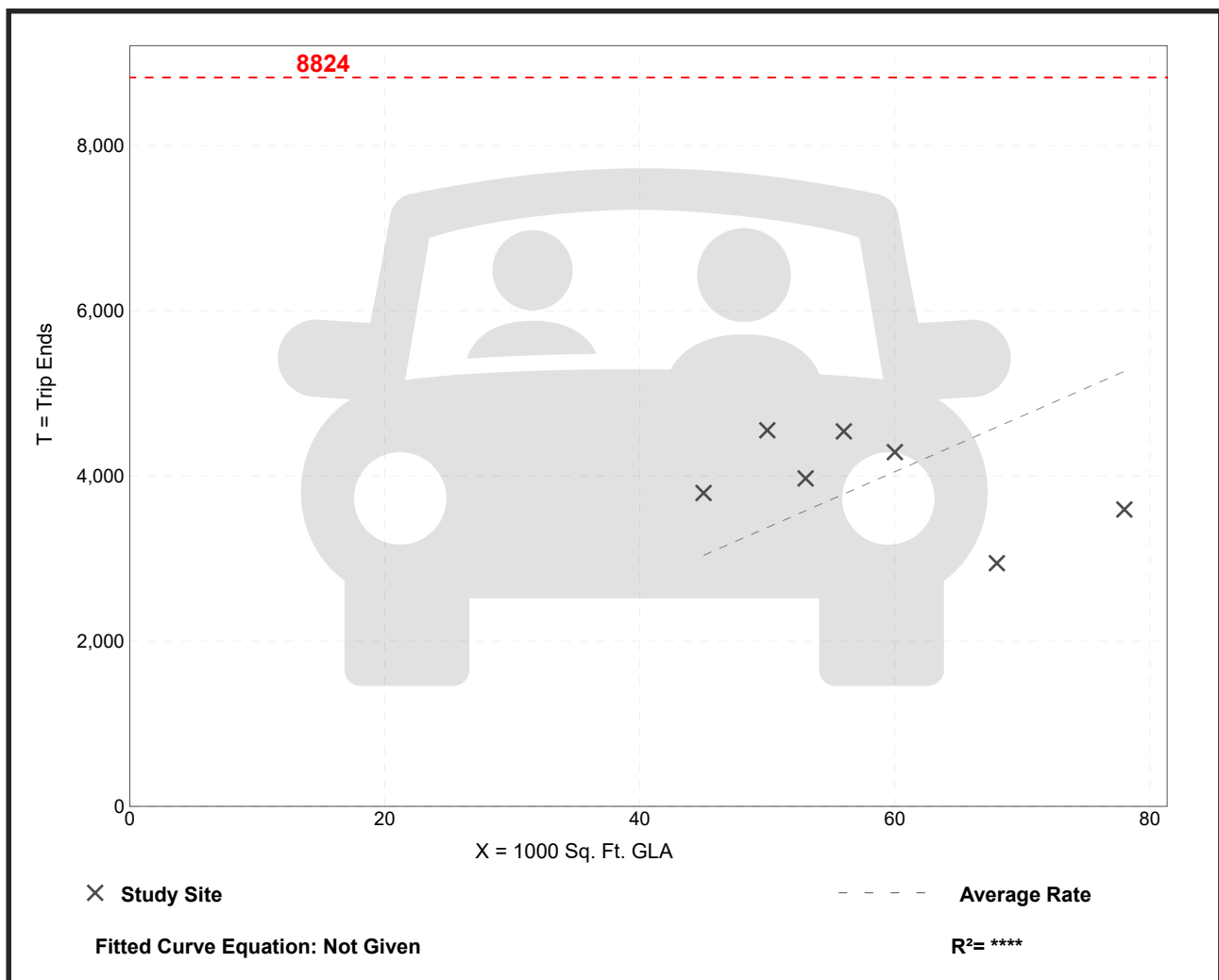
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 7
Avg. 1000 Sq. Ft. GLA: 59
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
67.52	43.29 - 91.06	19.25

Data Plot and Equation



NCHRP 8-51 Internal Trip Capture Estimation Tool					
Project Name:	TES Eloy			Organization:	Y2K Engineering
Project Location:	Battaglia Road and Frontier Street			Performed By:	SJC
Scenario Description:	Full Build-Out			Date:	8/12/2025
Analysis Year:	2035			Checked By:	
Analysis Period:	AM Street Peak Hour			Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	720 and 150	2,073	KSF	761	641	120
Retail	820 and 821	305	KSF	462	287	175
Restaurant				0		
Cinema/Entertainment				0		
Residential	221	300	DU	120	28	92
Hotel				0		
All Other Land Uses ²				0		
Total				1343	956	387

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses ²						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		34	0	0	0	0
Retail	26		0	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	1,343	956	387
Internal Capture Percentage	10%	7%	17%
External Vehicle-Trips ³	1,215	892	323
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	4%	28%
Retail	12%	15%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	4%	3%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

⁴Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

NCHRP 8-51 Internal Trip Capture Estimation Tool					
Project Name:	TES Eloy			Organization:	Y2K Engineering
Project Location:	Battaglia Road and Frontier Street			Performed By:	SJC
Scenario Description:	Full Build-Out			Date:	8/12/2025
Analysis Year:	2035			Checked By:	
Analysis Period:	PM Street Peak Hour			Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	720 and 150	2,073	KSF	695	142	553
Retail	820 and 821	305	KSF	1520	736	784
Restaurant				0		
Cinema/Entertainment				0		
Residential	221	300	DU	117	72	45
Hotel				0		
All Other Land Uses ²				0		
Total				2332	950	1382

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses ²						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		59	0	0	3	0
Retail	16		0	0	33	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	19	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	2,332	950	1,382
Internal Capture Percentage	11%	14%	10%
External Vehicle-Trips ³	2,068	818	1,250
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	13%	11%
Retail	11%	6%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	50%	47%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

⁴Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	TES Eloy
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	641	641	1.00	120	120
Retail	1.00	287	287	1.00	175	175
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	28	28	1.00	92	92
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		34	76	0	1	0
Retail	51		23	0	25	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	18	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		92	0	0	0	0
Retail	26		0	0	1	0
Restaurant	90	23		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	19	49	0	0		0
Hotel	19	11	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	28	613	641	613	0	0
Retail	35	252	287	252	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	27	28	27	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	34	86	120	86	0	0
Retail	27	148	175	148	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	3	89	92	89	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A
² Person-Trips
³ Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator
*Indicates computation that has been rounded to the nearest whole number.

Project Name:	TES Eloy
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	142	142	1.00	553	553
Retail	1.00	736	736	1.00	784	784
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	72	72	1.00	45	45
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		111	22	0	11	0
Retail	16		227	31	204	39
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	19	9	0		1
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		59	0	0	3	0
Retail	44		0	0	33	0
Restaurant	43	368		0	12	0
Cinema/Entertainment	9	29	0		3	0
Residential	81	74	0	0		0
Hotel	0	15	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	18	124	142	124	0	0
Retail	78	658	736	658	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	36	36	72	36	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	62	491	553	491	0	0
Retail	49	735	784	735	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	21	24	45	24	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

APPENDIX F: 2025 LEVEL OF SERVICE ANALYSIS

1: Frontier St & Tumbleweed Rd
2025 Background AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	168	224	8	19	0
Future Vol, veh/h	0	168	224	8	19	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	85	85	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	198	264	9	24	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	273	0	-	0	466	268
Stage 1	-	-	-	-	268	-
Stage 2	-	-	-	-	198	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1290	-	-	-	555	770
Stage 1	-	-	-	-	777	-
Stage 2	-	-	-	-	836	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1290	-	-	-	555	770
Mov Cap-2 Maneuver	-	-	-	-	555	-
Stage 1	-	-	-	-	777	-
Stage 2	-	-	-	-	836	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		11.78		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1290	-	-	-	555	
HCM Lane V/C Ratio	-	-	-	-	0.043	
HCM Ctrl Dly (s/v)	0	-	-	-	11.8	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

2: Battaglia Rd & Frontier St
2025 Background AM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	7.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	93	87	0	40	64	58	162	0	46	136	5
Future Vol, veh/h	8	93	87	0	40	64	58	162	0	46	136	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	225	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	80	85	85	80	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	109	102	0	47	75	73	191	0	58	160	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	637	614	163	665	616	191	166	0	0	191	0	0
Stage 1	278	278	-	336	336	-	-	-	-	-	-	-
Stage 2	359	336	-	330	281	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	390	407	882	373	406	851	1412	-	-	1383	-	-
Stage 1	729	681	-	678	642	-	-	-	-	-	-	-
Stage 2	659	642	-	683	678	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	285	370	882	217	369	851	1412	-	-	1383	-	-
Mov Cap-2 Maneuver	285	370	-	217	369	-	-	-	-	-	-	-
Stage 1	698	652	-	644	609	-	-	-	-	-	-	-
Stage 2	526	609	-	482	650	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	17.9		13.1		2.12		1.99	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1412	-	-	498	566	1383	-
HCM Lane V/C Ratio	0.051	-	-	0.444	0.216	0.042	-
HCM Ctrl Dly (s/v)	7.7	-	-	17.9	13.1	7.7	-
HCM Lane LOS	A	-	-	C	B	A	-
HCM 95th %tile Q(veh)	0.2	-	-	2.3	0.8	0.1	-

3: Battaglia Rd & 11 Mile Corner Rd
2025 Background AM

HCM 7th AWSC

Intersection		
Intersection Delay, s/veh	8.8	
Intersection LOS	A	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	107	1	14	86	23	2	32	22	25	41	16
Future Vol, veh/h	34	107	1	14	86	23	2	32	22	25	41	16
Peak Hour Factor	0.85	0.85	0.80	0.85	0.85	0.85	0.80	0.80	0.80	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	126	1	16	101	27	3	40	28	29	48	19
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay, s/veh	9.5	8.6	8.1	8.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	4%	24%	0%	11%	30%
Vol Thru, %	57%	76%	0%	70%	50%
Vol Right, %	39%	0%	100%	19%	20%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	56	141	1	123	82
LT Vol	2	34	0	14	25
Through Vol	32	107	0	86	41
RT Vol	22	0	1	23	16
Lane Flow Rate	70	166	1	145	96
Geometry Grp	2	5	5	4a	2
Degree of Util (X)	0.089	0.238	0.002	0.183	0.127
Departure Headway (Hd)	4.594	5.171	4.346	4.555	4.729
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	779	695	823	787	757
Service Time	2.629	2.901	2.076	2.585	2.762
HCM Lane V/C Ratio	0.09	0.239	0.001	0.184	0.127
HCM Control Delay, s/veh	8.1	9.5	7.1	8.6	8.5
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.3	0.9	0	0.7	0.4

4: 11 Mile Corner Rd & Houser Rd
2025 Background AM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	0	7	0	3	2	4	84	0	1	75	9
Future Vol, veh/h	10	0	7	0	3	2	4	84	0	1	75	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	0	9	0	4	3	5	99	0	1	88	11

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	206	204	94	199	209	99	99	0	0	99	0	0
Stage 1	96	96	-	108	108	-	-	-	-	-	-	-
Stage 2	110	108	-	91	101	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	752	692	963	760	688	957	1494	-	-	1494	-	-
Stage 1	911	816	-	897	806	-	-	-	-	-	-	-
Stage 2	895	806	-	917	811	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	743	689	963	750	685	957	1494	-	-	1494	-	-
Mov Cap-2 Maneuver	743	689	-	750	685	-	-	-	-	-	-	-
Stage 1	910	815	-	894	803	-	-	-	-	-	-	-
Stage 2	886	803	-	908	811	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	9.51		9.7		0.34		0.09	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	82	-	-	820	773	21	-	-
HCM Lane V/C Ratio	0.003	-	-	0.026	0.008	0.001	-	-
HCM Ctrl Dly (s/v)	7.4	0	-	9.5	9.7	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

5: Tumbleweed Rd & Houser Rd
2025 Background AM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	11	1	0	16	0	1	6	0	2	20	4
Future Vol, veh/h	4	11	1	0	16	0	1	6	0	2	20	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	14	1	0	20	0	1	8	0	3	25	5

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	53	43	28	47	45	8	30	0	0	8	0	0
Stage 1	33	33	-	10	10	-	-	-	-	-	-	-
Stage 2	20	10	-	37	35	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	946	849	1048	954	847	1075	1583	-	-	1613	-	-
Stage 1	984	868	-	1011	887	-	-	-	-	-	-	-
Stage 2	999	887	-	979	866	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	922	847	1048	935	845	1075	1583	-	-	1613	-	-
Mov Cap-2 Maneuver	922	847	-	935	845	-	-	-	-	-	-	-
Stage 1	982	867	-	1010	887	-	-	-	-	-	-	-
Stage 2	975	887	-	960	864	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	9.21		9.36		1.04		0.56	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	257	-	-	876	845	134	-	-
HCM Lane V/C Ratio	0.001	-	-	0.023	0.024	0.002	-	-
HCM Ctrl Dly (s/v)	7.3	0	-	9.2	9.4	7.2	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

1: Frontier St & Tumbleweed Rd
2025 Background PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	193	213	15	20	0
Future Vol, veh/h	0	193	213	15	20	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	85	85	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	227	251	18	25	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	268	0	-	0	486	259
Stage 1	-	-	-	-	259	-
Stage 2	-	-	-	-	227	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1295	-	-	-	540	779
Stage 1	-	-	-	-	784	-
Stage 2	-	-	-	-	811	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1295	-	-	-	540	779
Mov Cap-2 Maneuver	-	-	-	-	540	-
Stage 1	-	-	-	-	784	-
Stage 2	-	-	-	-	811	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		11.99		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1295	-	-	-	540	
HCM Lane V/C Ratio	-	-	-	-	0.046	
HCM Ctrl Dly (s/v)	0	-	-	-	12	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

2: Battaglia Rd & Frontier St
2025 Background PM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	8.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	18	50	90	0	84	52	71	163	0	55	162	3
Future Vol, veh/h	18	50	90	0	84	52	71	163	0	55	162	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	225	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	80	85	85	80	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	59	106	0	99	61	89	192	0	69	191	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	749	699	192	727	701	192	194	0	0	192	0	0
Stage 1	330	330	-	369	369	-	-	-	-	-	-	-
Stage 2	419	369	-	358	332	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	328	364	849	340	363	850	1379	-	-	1382	-	-
Stage 1	683	646	-	651	621	-	-	-	-	-	-	-
Stage 2	612	621	-	660	645	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	195	323	849	221	323	850	1379	-	-	1382	-	-
Mov Cap-2 Maneuver	195	323	-	221	323	-	-	-	-	-	-	-
Stage 1	649	614	-	609	581	-	-	-	-	-	-	-
Stage 2	441	581	-	497	613	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	18.64		18.59		2.46		2.02	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1379	-	-	447 423	1382	-	-
HCM Lane V/C Ratio	0.064	-	-	0.415 0.378	0.05	-	-
HCM Ctrl Dly (s/v)	7.8	-	-	18.6 18.6	7.7	-	-
HCM Lane LOS	A	-	-	C C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	2 1.7	0.2	-	-

3: Battaglia Rd & 11 Mile Corner Rd
2025 Background PM

HCM 7th AWSC

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	93	1	16	105	19	2	25	20	30	36	32
Future Vol, veh/h	12	93	1	16	105	19	2	25	20	30	36	32
Peak Hour Factor	0.85	0.85	0.80	0.85	0.85	0.85	0.80	0.80	0.80	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	109	1	19	124	22	3	31	25	35	42	38
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay, s/veh	9	8.8	7.9	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	4%	11%	0%	11%	31%
Vol Thru, %	53%	89%	0%	75%	37%
Vol Right, %	43%	0%	100%	14%	33%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	47	105	1	140	98
LT Vol	2	12	0	16	30
Through Vol	25	93	0	105	36
RT Vol	20	0	1	19	32
Lane Flow Rate	59	124	1	165	115
Geometry Grp	2	5	5	4a	2
Degree of Util (X)	0.074	0.176	0.002	0.208	0.146
Departure Headway (Hd)	4.527	5.135	4.374	4.54	4.569
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	790	699	818	791	785
Service Time	2.561	2.864	2.102	2.567	2.598
HCM Lane V/C Ratio	0.075	0.177	0.001	0.209	0.146
HCM Control Delay, s/veh	7.9	9	7.1	8.8	8.4
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.2	0.6	0	0.8	0.5

4: 11 Mile Corner Rd & Houser Rd
2025 Background PM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	1	4	3	2	1	6	54	0	1	86	7
Future Vol, veh/h	5	1	4	3	2	1	6	54	0	1	86	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	1	5	4	3	1	8	68	0	1	101	8

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	191	190	105	187	194	68	109	0	0	68	0	0
Stage 1	108	108	-	83	83	-	-	-	-	-	-	-
Stage 2	84	83	-	104	112	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	768	705	949	774	701	996	1481	-	-	1534	-	-
Stage 1	898	806	-	926	826	-	-	-	-	-	-	-
Stage 2	924	826	-	902	803	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	760	700	949	764	697	996	1481	-	-	1534	-	-
Mov Cap-2 Maneuver	760	700	-	764	697	-	-	-	-	-	-	-
Stage 1	897	806	-	921	822	-	-	-	-	-	-	-
Stage 2	916	822	-	895	802	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	9.47		9.73		0.74		0.08	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	180	-	-	818	769	19	-
HCM Lane V/C Ratio	0.005	-	-	0.015	0.01	0.001	-
HCM Ctrl Dly (s/v)	7.4	0	-	9.5	9.7	7.3	0
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-

5: Tumbleweed Rd & Houser Rd
2025 Background PM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	4.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	6	1	1	12	3	0	15	0	5	18	2
Future Vol, veh/h	9	6	1	1	12	3	0	15	0	5	18	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	8	1	1	15	4	0	19	0	6	23	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	63	55	24	58	56	19	25	0	0	19	0	0
Stage 1	36	36	-	19	19	-	-	-	-	-	-	-
Stage 2	26	19	-	39	38	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	932	836	1053	939	835	1060	1589	-	-	1598	-	-
Stage 1	979	865	-	1000	880	-	-	-	-	-	-	-
Stage 2	991	880	-	976	864	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	909	833	1053	926	832	1060	1589	-	-	1598	-	-
Mov Cap-2 Maneuver	909	833	-	926	832	-	-	-	-	-	-	-
Stage 1	975	861	-	1000	880	-	-	-	-	-	-	-
Stage 2	971	880	-	963	860	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.16	9.22	0	1.45
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1589	-	-	886	872	353	-
HCM Lane V/C Ratio	-	-	-	0.023	0.023	0.004	-
HCM Ctrl Dly (s/v)	0	-	-	9.2	9.2	7.3	0
HCM Lane LOS	A	-	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-

1: Frontier St & Tumbleweed Rd
2025 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	214	234	8	19	1
Future Vol, veh/h	13	214	234	8	19	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	85	85	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	252	275	9	24	1
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	285	0	-	0	564	280
Stage 1	-	-	-	-	280	-
Stage 2	-	-	-	-	284	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1278	-	-	-	487	759
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	764	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1278	-	-	-	480	759
Mov Cap-2 Maneuver	-	-	-	-	480	-
Stage 1	-	-	-	-	758	-
Stage 2	-	-	-	-	764	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.48	0		12.75		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1278	-	-	-	489	
HCM Lane V/C Ratio	0.013	-	-	-	0.051	
HCM Ctrl Dly (s/v)	7.9	-	-	-	12.8	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.2	

2: Battaglia Rd & Frontier St
2025 Total AM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	93	87	0	40	72	58	174	0	47	140	5
Future Vol, veh/h	8	93	87	0	40	72	58	174	0	47	140	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	225	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	80	85	85	80	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	109	102	0	47	85	73	205	0	59	165	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	658	635	168	687	638	205	171	0	0	205	0	0
Stage 1	285	285	-	350	350	-	-	-	-	-	-	-
Stage 2	373	350	-	337	288	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	377	396	876	361	395	836	1407	-	-	1367	-	-
Stage 1	722	676	-	667	633	-	-	-	-	-	-	-
Stage 2	648	633	-	677	674	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	271	359	876	207	358	836	1407	-	-	1367	-	-
Mov Cap-2 Maneuver	271	359	-	207	358	-	-	-	-	-	-	-
Stage 1	691	647	-	632	600	-	-	-	-	-	-	-
Stage 2	509	600	-	476	645	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	18.49		13.28		2.01		1.99	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1407	-	-	485 566	1367	-	-
HCM Lane V/C Ratio	0.052	-	-	0.456 0.233	0.043	-	-
HCM Ctrl Dly (s/v)	7.7	-	-	18.5 13.3	7.8	-	-
HCM Lane LOS	A	-	-	C B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	2.3 0.9	0.1	-	-

3: Battaglia Rd & 11 Mile Corner Rd
2025 Total AM

HCM 7th AWSC

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	108	1	14	94	33	2	52	22	27	44	16
Future Vol, veh/h	34	108	1	14	94	33	2	52	22	27	44	16
Peak Hour Factor	0.85	0.85	0.80	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	127	1	16	111	39	2	61	26	32	52	19
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay, s/veh	9.7	8.9	8.4	8.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	3%	24%	0%	10%	31%
Vol Thru, %	68%	76%	0%	67%	51%
Vol Right, %	29%	0%	100%	23%	18%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	76	142	1	141	87
LT Vol	2	34	0	14	27
Through Vol	52	108	0	94	44
RT Vol	22	0	1	33	16
Lane Flow Rate	89	167	1	166	102
Geometry Grp	2	5	5	4a	2
Degree of Util (X)	0.117	0.244	0.002	0.212	0.137
Departure Headway (Hd)	4.722	5.261	4.436	4.598	4.822
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	756	682	805	780	741
Service Time	2.766	2.998	2.173	2.637	2.865
HCM Lane V/C Ratio	0.118	0.245	0.001	0.213	0.138
HCM Control Delay, s/veh	8.4	9.7	7.2	8.9	8.6
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.4	1	0	0.8	0.5

4: 11 Mile Corner Rd & Houser Rd
2025 Total AM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	0	41	0	3	2	9	85	0	1	78	9
Future Vol, veh/h	10	0	41	0	3	2	9	85	0	1	78	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	0	51	0	4	3	11	100	0	1	92	11

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	222	221	97	215	226	100	102	0	0	100	0	0
Stage 1	99	99	-	121	121	-	-	-	-	-	-	-
Stage 2	123	121	-	94	105	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	733	678	959	741	673	956	1490	-	-	1493	-	-
Stage 1	907	813	-	883	795	-	-	-	-	-	-	-
Stage 2	881	795	-	913	809	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	721	672	959	696	668	956	1490	-	-	1493	-	-
Mov Cap-2 Maneuver	721	672	-	696	668	-	-	-	-	-	-	-
Stage 1	906	812	-	876	790	-	-	-	-	-	-	-
Stage 2	868	790	-	863	808	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.3	9.78	0.71	0.08
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	172	-	-	901	759	20	-
HCM Lane V/C Ratio	0.007	-	-	0.071	0.008	0.001	-
HCM Ctrl Dly (s/v)	7.4	0	-	9.3	9.8	7.4	0
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0	-

5: Tumbleweed Rd & Houser Rd
2025 Total AM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	6.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	45	13	0	21	0	4	7	0	2	23	4
Future Vol, veh/h	4	45	13	0	21	0	4	7	0	2	23	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	56	16	0	26	0	5	9	0	3	29	5
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	68	55	31	81	58	9	34	0	0	9	0	0
Stage 1	36	36	-	19	19	-	-	-	-	-	-	-
Stage 2	32	19	-	62	39	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	924	836	1043	907	834	1073	1578	-	-	1611	-	-
Stage 1	979	865	-	1000	880	-	-	-	-	-	-	-
Stage 2	985	880	-	949	863	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	891	832	1043	829	830	1073	1578	-	-	1611	-	-
Mov Cap-2 Maneuver	891	832	-	829	830	-	-	-	-	-	-	-
Stage 1	978	863	-	997	877	-	-	-	-	-	-	-
Stage 2	952	877	-	872	861	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Ctrl Dly, s/v	9.53		9.48			2.65			0.5			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	655	-	-	873	830	121	-	-				
HCM Lane V/C Ratio	0.003	-	-	0.089	0.032	0.002	-	-				
HCM Ctrl Dly (s/v)	7.3	0	-	9.5	9.5	7.2	0	-				
HCM Lane LOS	A	A	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.3	0.1	0	-	-				

6: Tumbleweed Rd & Driveway A
2025 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	2.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	4	8	13	15	19
Future Vol, veh/h	1	4	8	13	15	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	5	10	16	19	24
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	79	18	0	0	26	0
Stage 1	18	-	-	-	-	-
Stage 2	61	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	923	1060	-	-	1588	-
Stage 1	1005	-	-	-	-	-
Stage 2	961	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	912	1060	-	-	1588	-
Mov Cap-2 Maneuver	912	-	-	-	-	-
Stage 1	1005	-	-	-	-	-
Stage 2	950	-	-	-	-	-
Approach	WB	NB		SB		
HCM Ctrl Dly, s/v	8.52	0		3.22		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT	
Capacity (veh/h)	-	-	912 1060	794	-	
HCM Lane V/C Ratio	-	-	0.001 0.005	0.012	-	
HCM Ctrl Dly (s/v)	-	-	9 8.4	7.3	0	
HCM Lane LOS	-	-	A A	A	A	
HCM 95th %tile Q(veh)	-	-	0 0	0	-	

7: Frontier St & Driveway B
2025 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	230	244	3	1	1
Future Vol, veh/h	3	230	244	3	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	271	287	4	1	1
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	291	0	-	0	566	289
Stage 1	-	-	-	-	289	-
Stage 2	-	-	-	-	278	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1271	-	-	-	485	750
Stage 1	-	-	-	-	760	-
Stage 2	-	-	-	-	769	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1271	-	-	-	484	750
Mov Cap-2 Maneuver	-	-	-	-	484	-
Stage 1	-	-	-	-	758	-
Stage 2	-	-	-	-	769	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.1	0		11.13		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	23	-	-	-	484	750
HCM Lane V/C Ratio	0.003	-	-	-	0.003	0.002
HCM Ctrl Dly (s/v)	7.8	0	-	-	12.5	9.8
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	-	0	0

8: Frontier St & Driveway C
2025 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	43	188	243	9	4	4
Future Vol, veh/h	43	188	243	9	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	51	221	286	11	5	5
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	296	0	-	0	614	291
Stage 1	-	-	-	-	291	-
Stage 2	-	-	-	-	322	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1265	-	-	-	456	748
Stage 1	-	-	-	-	758	-
Stage 2	-	-	-	-	734	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1265	-	-	-	435	748
Mov Cap-2 Maneuver	-	-	-	-	435	-
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	734	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	1.48	0		11.61		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	335	-	-	-	435	748
HCM Lane V/C Ratio	0.04	-	-	-	0.012	0.007
HCM Ctrl Dly (s/v)	8	0	-	-	13.4	9.8
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0	0

9: Frontier St & Driveway D
2025 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Vol, veh/h	0	192	247	8	0	5
Future Vol, veh/h	0	192	247	8	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	226	291	9	0	6
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	-	0	-	0	-	295
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	744
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	744
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		9.88		
HCM LOS	A					
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	744		
HCM Lane V/C Ratio	-	-	-	0.008		
HCM Ctrl Dly (s/v)	-	-	-	9.9		
HCM Lane LOS	-	-	-	A		
HCM 95th %tile Q(veh)	-	-	-	0		

10: 11 Mile Corner Rd & Driveway E
2025 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	2	20	99	84	6
Future Vol, veh/h	2	2	20	99	84	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	3	24	116	99	7
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	266	102	106	0	-	0
Stage 1	102	-	-	-	-	-
Stage 2	164	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	723	953	1485	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	866	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	711	953	1485	-	-	-
Mov Cap-2 Maneuver	711	-	-	-	-	-
Stage 1	906	-	-	-	-	-
Stage 2	866	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	9.43	1.25		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	303	-	711	953	-	-
HCM Lane V/C Ratio	0.016	-	0.004	0.003	-	-
HCM Ctrl Dly (s/v)	7.5	0	10.1	8.8	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	-	-

13: 11 Mile Corner Rd & Driveway H
2025 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	3	10	91	87	31
Future Vol, veh/h	4	3	10	91	87	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	4	12	107	102	36

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	251	121	139	0	-	0
Stage 1	121	-	-	-	-	-
Stage 2	131	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	737	931	1445	-	-	-
Stage 1	905	-	-	-	-	-
Stage 2	895	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	731	931	1445	-	-	-
Mov Cap-2 Maneuver	731	-	-	-	-	-
Stage 1	897	-	-	-	-	-
Stage 2	895	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.5	0.74	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	178	-	731	931	-	-
HCM Lane V/C Ratio	0.008	-	0.007	0.004	-	-
HCM Ctrl Dly (s/v)	7.5	0	10	8.9	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	-	-

1: Frontier St & Tumbleweed Rd
2025 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	203	259	15	20	3
Future Vol, veh/h	2	203	259	15	20	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	85	85	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	239	305	18	25	4
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	322	0	-	0	557	314
Stage 1	-	-	-	-	314	-
Stage 2	-	-	-	-	244	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1237	-	-	-	491	727
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	797	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1237	-	-	-	490	727
Mov Cap-2 Maneuver	-	-	-	-	490	-
Stage 1	-	-	-	-	740	-
Stage 2	-	-	-	-	797	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.08	0		12.45		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1237	-	-	-	512	
HCM Lane V/C Ratio	0.002	-	-	-	0.056	
HCM Ctrl Dly (s/v)	7.9	-	-	-	12.5	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.2	

2: Battaglia Rd & Frontier St
2025 Total PM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	8.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	50	90	0	84	54	71	168	0	58	174	3
Future Vol, veh/h	18	50	90	0	84	54	71	168	0	58	174	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	225	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	80	85	85	80	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	59	106	0	99	64	89	198	0	73	205	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	776	727	206	754	728	198	208	0	0	198	0	0
Stage 1	351	351	-	375	375	-	-	-	-	-	-	-
Stage 2	425	375	-	379	353	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	315	351	834	325	350	843	1363	-	-	1375	-	-
Stage 1	665	632	-	646	617	-	-	-	-	-	-	-
Stage 2	607	617	-	643	631	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	182	311	834	208	310	843	1363	-	-	1375	-	-
Mov Cap-2 Maneuver	182	311	-	208	310	-	-	-	-	-	-	-
Stage 1	630	599	-	604	577	-	-	-	-	-	-	-
Stage 2	435	577	-	479	598	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	19.61		19.31		2.43		2.01	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1363	-	-	430 412	1375	-	-
HCM Lane V/C Ratio	0.065	-	-	0.433 0.394	0.053	-	-
HCM Ctrl Dly (s/v)	7.8	-	-	19.6 19.3	7.8	-	-
HCM Lane LOS	A	-	-	C C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	2.1 1.8	0.2	-	-

3: Battaglia Rd & 11 Mile Corner Rd
2025 Total PM

HCM 7th AWSC

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	96	1	16	107	20	2	29	20	42	54	32
Future Vol, veh/h	12	96	1	16	107	20	2	29	20	42	54	32
Peak Hour Factor	0.85	0.85	0.80	0.85	0.85	0.85	0.80	0.80	0.80	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	113	1	19	126	24	3	36	25	49	64	38
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay, s/veh	9.2	9	8.1	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	4%	11%	0%	11%	33%
Vol Thru, %	57%	89%	0%	75%	42%
Vol Right, %	39%	0%	100%	14%	25%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	51	108	1	143	128
LT Vol	2	12	0	16	42
Through Vol	29	96	0	107	54
RT Vol	20	0	1	20	32
Lane Flow Rate	64	127	1	168	151
Geometry Grp	2	5	5	4a	2
Degree of Util (X)	0.082	0.185	0.002	0.217	0.195
Departure Headway (Hd)	4.624	5.247	4.486	4.649	4.656
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	773	682	795	771	770
Service Time	2.666	2.987	2.226	2.687	2.691
HCM Lane V/C Ratio	0.083	0.186	0.001	0.218	0.196
HCM Control Delay, s/veh	8.1	9.2	7.2	9	8.8
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.3	0.7	0	0.8	0.7

4: 11 Mile Corner Rd & Houser Rd
2025 Total PM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	1	9	3	2	1	33	57	0	1	87	7
Future Vol, veh/h	5	1	9	3	2	1	33	57	0	1	87	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	1	11	4	3	1	39	67	0	1	102	8
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	255	254	106	250	258	67	111	0	0	67	0	0
Stage 1	109	109	-	145	145	-	-	-	-	-	-	-
Stage 2	146	145	-	105	113	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	698	650	948	703	647	996	1479	-	-	1534	-	-
Stage 1	896	805	-	858	777	-	-	-	-	-	-	-
Stage 2	857	777	-	900	802	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	675	632	948	674	628	996	1479	-	-	1534	-	-
Mov Cap-2 Maneuver	675	632	-	674	628	-	-	-	-	-	-	-
Stage 1	896	805	-	835	756	-	-	-	-	-	-	-
Stage 2	830	756	-	888	801	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Ctrl Dly, s/v	9.54		10.24			2.75			0.08			
HCM LOS	A		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	660	-	-	812	695	19	-	-				
HCM Lane V/C Ratio	0.026	-	-	0.023	0.011	0.001	-	-				
HCM Ctrl Dly (s/v)	7.5	0	-	9.5	10.2	7.3	0	-				
HCM Lane LOS	A	A	-	A	B	A	A	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0	0	-	-				

5: Tumbleweed Rd & Houser Rd
2025 Total PM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	6.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	11	6	1	39	3	12	18	0	5	20	2
Future Vol, veh/h	9	11	6	1	39	3	12	18	0	5	20	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	14	8	1	49	4	15	23	0	6	25	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	116	91	26	97	93	23	28	0	0	23	0	0
Stage 1	39	39	-	53	53	-	-	-	-	-	-	-
Stage 2	77	53	-	44	40	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	861	799	1049	886	798	1054	1586	-	-	1593	-	-
Stage 1	976	863	-	960	851	-	-	-	-	-	-	-
Stage 2	932	851	-	970	862	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	795	788	1049	852	787	1054	1586	-	-	1593	-	-
Mov Cap-2 Maneuver	795	788	-	852	787	-	-	-	-	-	-	-
Stage 1	972	859	-	951	843	-	-	-	-	-	-	-
Stage 2	867	843	-	944	858	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	9.47			9.81			2.92			1.35		
HCM LOS	A			A								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	720	-	-	839	802	327	-
HCM Lane V/C Ratio	0.009	-	-	0.039	0.067	0.004	-
HCM Ctrl Dly (s/v)	7.3	0	-	9.5	9.8	7.3	0
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-

6: Tumbleweed Rd & Driveway A
2025 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	3.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	15	15	2	7	20
Future Vol, veh/h	3	15	15	2	7	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	19	19	3	9	25
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	63	20	0	0	21	0
Stage 1	20	-	-	-	-	-
Stage 2	43	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	944	1058	-	-	1594	-
Stage 1	1003	-	-	-	-	-
Stage 2	980	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	938	1058	-	-	1594	-
Mov Cap-2 Maneuver	938	-	-	-	-	-
Stage 1	1003	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Approach	WB	NB		SB		
HCM Ctrl Dly, s/v	8.53	0		1.88		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	938	1058	467	-
HCM Lane V/C Ratio	-	-	0.004	0.018	0.005	-
HCM Ctrl Dly (s/v)	-	-	8.9	8.5	7.3	0
HCM Lane LOS	-	-	A	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0.1	0	-

7: Frontier St & Driveway B
2025 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	229	277	1	3	2
Future Vol, veh/h	1	229	277	1	3	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	269	326	1	4	3
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	327	0	-	0	598	326
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	272	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1233	-	-	-	465	715
Stage 1	-	-	-	-	731	-
Stage 2	-	-	-	-	774	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1233	-	-	-	464	715
Mov Cap-2 Maneuver	-	-	-	-	464	-
Stage 1	-	-	-	-	730	-
Stage 2	-	-	-	-	774	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.03	0		11.71		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	8	-	-	-	464	715
HCM Lane V/C Ratio	0.001	-	-	-	0.008	0.003
HCM Ctrl Dly (s/v)	7.9	0	-	-	12.8	10.1
HCM Lane LOS	A	A	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0	0

8: Frontier St & Driveway C
2025 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	223	265	3	12	13
Future Vol, veh/h	9	223	265	3	12	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	262	312	4	15	16
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	315	0	-	0	597	314
Stage 1	-	-	-	-	314	-
Stage 2	-	-	-	-	284	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1245	-	-	-	466	727
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	765	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1245	-	-	-	461	727
Mov Cap-2 Maneuver	-	-	-	-	461	-
Stage 1	-	-	-	-	734	-
Stage 2	-	-	-	-	765	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.31	0		11.51		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	70	-	-	-	461	727
HCM Lane V/C Ratio	0.009	-	-	-	0.033	0.022
HCM Ctrl Dly (s/v)	7.9	0	-	-	13.1	10.1
HCM Lane LOS	A	A	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0.1

9: Frontier St & Driveway D
2025 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Vol, veh/h	0	235	238	2	0	30
Future Vol, veh/h	0	235	238	2	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	276	280	2	0	38
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	-	0	-	0	-	281
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	758
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	758
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		10		
HCM LOS	A					
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	758		
HCM Lane V/C Ratio	-	-	-	0.049		
HCM Ctrl Dly (s/v)	-	-	-	10		
HCM Lane LOS	-	-	-	A		
HCM 95th %tile Q(veh)	-	-	-	0.2		

10: 11 Mile Corner Rd & Driveway E
2025 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	14	4	57	115	2
Future Vol, veh/h	6	14	4	57	115	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	18	5	71	135	2
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	218	136	138	0	-	0
Stage 1	136	-	-	-	-	-
Stage 2	81	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	770	912	1446	-	-	-
Stage 1	890	-	-	-	-	-
Stage 2	942	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	768	912	1446	-	-	-
Mov Cap-2 Maneuver	768	-	-	-	-	-
Stage 1	887	-	-	-	-	-
Stage 2	942	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	9.24	0.49		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	118	-	768	912	-	-
HCM Lane V/C Ratio	0.003	-	0.01	0.019	-	-
HCM Ctrl Dly (s/v)	7.5	0	9.7	9	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0.1	-	-

13: 11 Mile Corner Rd & Driveway H
2025 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	24	16	1	62	101	4
Future Vol, veh/h	24	16	1	62	101	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	20	1	78	119	5
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	201	121	124	0	-	0
Stage 1	121	-	-	-	-	-
Stage 2	80	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	787	930	1463	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	943	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	787	930	1463	-	-	-
Mov Cap-2 Maneuver	787	-	-	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	943	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	9.44	0.12		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	29	-	787	930	-	-
HCM Lane V/C Ratio	0.001	-	0.038	0.022	-	-
HCM Ctrl Dly (s/v)	7.5	0	9.8	9	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0.1	-	-

APPENDIX G: 2030 LEVEL OF SERVICE ANALYSIS

1: Frontier St & Tumbleweed Rd
2030 Background AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	205	272	10	23	0
Future Vol, veh/h	0	205	272	10	23	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	85	85	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	241	320	12	29	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	332	0	-	0	567	326
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	241	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1228	-	-	-	485	715
Stage 1	-	-	-	-	732	-
Stage 2	-	-	-	-	799	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1228	-	-	-	485	715
Mov Cap-2 Maneuver	-	-	-	-	485	-
Stage 1	-	-	-	-	732	-
Stage 2	-	-	-	-	799	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		12.89		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1228	-	-	-	485	
HCM Lane V/C Ratio	-	-	-	-	0.059	
HCM Ctrl Dly (s/v)	0	-	-	-	12.9	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.2	

2: Battaglia Rd & Frontier St
2030 Background AM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	11											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	113	106	0	48	78	71	197	0	56	166	6
Future Vol, veh/h	10	113	106	0	48	78	71	197	0	56	166	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	225	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	80	85	85	80	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	133	125	0	56	92	89	232	0	70	195	7
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	776	748	199	811	752	232	202	0	0	232	0	0
Stage 1	339	339	-	409	409	-	-	-	-	-	-	-
Stage 2	438	409	-	402	342	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	314	341	842	298	339	807	1369	-	-	1336	-	-
Stage 1	676	640	-	619	596	-	-	-	-	-	-	-
Stage 2	598	596	-	625	638	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	205	302	842	133	301	807	1369	-	-	1336	-	-
Mov Cap-2 Maneuver	205	302	-	133	301	-	-	-	-	-	-	-
Stage 1	640	606	-	579	557	-	-	-	-	-	-	-
Stage 2	445	557	-	394	604	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Ctrl Dly, s/v	28.03		15.45			2.16			2.02			
HCM LOS	D		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1369	-	-	417	492	1336	-	-				
HCM Lane V/C Ratio	0.065	-	-	0.645	0.301	0.052	-	-				
HCM Ctrl Dly (s/v)	7.8	-	-	28	15.4	7.8	-	-				
HCM Lane LOS	A	-	-	D	C	A	-	-				
HCM 95th %tile Q(veh)	0.2	-	-	4.4	1.3	0.2	-	-				

3: Battaglia Rd & 11 Mile Corner Rd
2030 Background AM

HCM 7th AWSC

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	42	130	1	16	105	28	3	39	27	30	49	19
Future Vol, veh/h	42	130	1	16	105	28	3	39	27	30	49	19
Peak Hour Factor	0.85	0.85	0.80	0.85	0.85	0.85	0.80	0.80	0.80	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	49	153	1	19	124	33	4	49	34	35	58	22
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay, s/veh	10.3	9.2	8.5	8.9
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	4%	24%	0%	11%	31%
Vol Thru, %	57%	76%	0%	70%	50%
Vol Right, %	39%	0%	100%	19%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	69	172	1	149	98
LT Vol	3	42	0	16	30
Through Vol	39	130	0	105	49
RT Vol	27	0	1	28	19
Lane Flow Rate	86	202	1	175	115
Geometry Grp	2	5	5	4a	2
Degree of Util (X)	0.115	0.298	0.002	0.229	0.158
Departure Headway (Hd)	4.808	5.303	4.475	4.704	4.934
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	742	676	796	759	723
Service Time	2.864	3.053	2.225	2.756	2.988
HCM Lane V/C Ratio	0.116	0.299	0.001	0.231	0.159
HCM Control Delay, s/veh	8.5	10.3	7.2	9.2	8.9
HCM Lane LOS	A	B	A	A	A
HCM 95th-tile Q	0.4	1.2	0	0.9	0.6

4: 11 Mile Corner Rd & Houser Rd
2030 Background AM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	0	9	0	4	3	5	102	0	1	91	11
Future Vol, veh/h	13	0	9	0	4	3	5	102	0	1	91	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	0	11	0	5	4	6	120	0	1	107	13

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	250	248	114	241	254	120	120	0	0	120	0	0
Stage 1	116	116	-	132	132	-	-	-	-	-	-	-
Stage 2	134	132	-	109	122	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	703	655	939	713	649	931	1468	-	-	1468	-	-
Stage 1	889	800	-	872	787	-	-	-	-	-	-	-
Stage 2	869	787	-	896	795	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	692	651	939	701	646	931	1468	-	-	1468	-	-
Mov Cap-2 Maneuver	692	651	-	701	646	-	-	-	-	-	-	-
Stage 1	888	799	-	868	784	-	-	-	-	-	-	-
Stage 2	856	784	-	884	794	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.82	9.9	0.35	0.07
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	84	-	-	775 744	17	-	-
HCM Lane V/C Ratio	0.004	-	-	0.035 0.012 0.001		-	-
HCM Ctrl Dly (s/v)	7.5	0	-	9.8 9.9 7.5	0	-	-
HCM Lane LOS	A	A	-	A A A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1 0 0	0	-	-

5: Tumbleweed Rd & Houser Rd
2030 Background AM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	14	1	0	19	0	1	8	0	3	24	5
Future Vol, veh/h	5	14	1	0	19	0	1	8	0	3	24	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	18	1	0	24	0	1	10	0	4	30	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	65	53	33	59	56	10	36	0	0	10	0	0
Stage 1	41	41	-	13	13	-	-	-	-	-	-	-
Stage 2	24	13	-	46	44	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	929	838	1040	937	835	1071	1575	-	-	1610	-	-
Stage 1	974	861	-	1008	885	-	-	-	-	-	-	-
Stage 2	994	885	-	967	858	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	899	835	1040	914	832	1071	1575	-	-	1610	-	-
Mov Cap-2 Maneuver	899	835	-	914	832	-	-	-	-	-	-	-
Stage 1	972	859	-	1007	884	-	-	-	-	-	-	-
Stage 2	966	884	-	944	856	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.32	9.45	0.81	0.68
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	200	-	-	859	832	163	-
HCM Lane V/C Ratio	0.001	-	-	0.029	0.029	0.002	-
HCM Ctrl Dly (s/v)	7.3	0	-	9.3	9.5	7.2	0
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-

1: Frontier St & Tumbleweed Rd
2030 Background PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	235	259	18	24	0
Future Vol, veh/h	0	235	259	18	24	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	85	85	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	276	305	21	30	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	326	0	0 592 315
Stage 1	-	-	- 315 -
Stage 2	-	-	- 276 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1234	-	- 469 725
Stage 1	-	-	- 740 -
Stage 2	-	-	- 770 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1234	-	- 469 725
Mov Cap-2 Maneuver	-	-	- 469 -
Stage 1	-	-	- 740 -
Stage 2	-	-	- 770 -

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0	0	13.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1234	-	-	-	469
HCM Lane V/C Ratio	-	-	-	-	0.064
HCM Ctrl Dly (s/v)	0	-	-	-	13.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

2: Battaglia Rd & Frontier St
2030 Background PM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	13.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↵	↵		↵	↵	
Traffic Vol, veh/h	22	61	110	0	102	63	86	199	0	67	197	4
Future Vol, veh/h	22	61	110	0	102	63	86	199	0	67	197	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	225	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	80	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	72	129	0	120	74	101	234	0	84	232	5

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	898	838	234	872	840	234	236	0	0	234	0	0
Stage 1	402	402	-	436	436	-	-	-	-	-	-	-
Stage 2	496	436	-	435	404	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	260	302	805	271	301	805	1331	-	-	1333	-	-
Stage 1	625	601	-	599	580	-	-	-	-	-	-	-
Stage 2	555	580	-	600	599	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	118	262	805	149	261	805	1331	-	-	1333	-	-
Mov Cap-2 Maneuver	118	262	-	149	261	-	-	-	-	-	-	-
Stage 1	586	563	-	553	536	-	-	-	-	-	-	-
Stage 2	361	536	-	411	561	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	33.05		27.14		2.39		2.06	
HCM LOS	D		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1331	-	-	347 352	1333	-	-
HCM Lane V/C Ratio	0.076	-	-	0.655 0.552	0.063	-	-
HCM Ctrl Dly (s/v)	7.9	-	-	33 27.1	7.9	-	-
HCM Lane LOS	A	-	-	D D	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	4.4 3.2	0.2	-	-

3: Battaglia Rd & 11 Mile Corner Rd
2030 Background PM

HCM 7th AWSC

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	113	1	19	128	23	3	30	24	37	44	39
Future Vol, veh/h	15	113	1	19	128	23	3	30	24	37	44	39
Peak Hour Factor	0.85	0.85	0.80	0.85	0.85	0.85	0.80	0.80	0.80	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	133	1	22	151	27	4	38	30	44	52	46
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay, s/veh	9.5	9.4	8.3	8.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	5%	12%	0%	11%	31%
Vol Thru, %	53%	88%	0%	75%	37%
Vol Right, %	42%	0%	100%	14%	33%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	57	128	1	170	120
LT Vol	3	15	0	19	37
Through Vol	30	113	0	128	44
RT Vol	24	0	1	23	39
Lane Flow Rate	71	151	1	200	141
Geometry Grp	2	5	5	4a	2
Degree of Util (X)	0.094	0.221	0.002	0.26	0.186
Departure Headway (Hd)	4.739	5.281	4.517	4.685	4.753
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	752	678	789	764	752
Service Time	2.793	3.027	2.263	2.73	2.801
HCM Lane V/C Ratio	0.094	0.223	0.001	0.262	0.188
HCM Control Delay, s/veh	8.3	9.5	7.3	9.4	8.9
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.3	0.8	0	1	0.7

4: 11 Mile Corner Rd & Houser Rd
2030 Background PM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	1	5	4	3	1	8	66	0	1	105	9
Future Vol, veh/h	6	1	5	4	3	1	8	66	0	1	105	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	1	6	5	4	1	10	83	0	1	124	11

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	236	234	129	229	239	83	134	0	0	83	0	0
Stage 1	131	131	-	103	103	-	-	-	-	-	-	-
Stage 2	104	103	-	127	136	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	719	667	921	726	662	977	1450	-	-	1515	-	-
Stage 1	872	788	-	903	810	-	-	-	-	-	-	-
Stage 2	901	810	-	877	784	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	708	661	921	714	657	977	1450	-	-	1515	-	-
Mov Cap-2 Maneuver	708	661	-	714	657	-	-	-	-	-	-	-
Stage 1	872	787	-	897	804	-	-	-	-	-	-	-
Stage 2	890	804	-	869	783	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.71	10.11	0.81	0.06
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	195	-	-	779	715	15	-	-
HCM Lane V/C Ratio	0.007	-	-	0.019	0.014	0.001	-	-
HCM Ctrl Dly (s/v)	7.5	0	-	9.7	10.1	7.4	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

5: Tumbleweed Rd & Houser Rd
2030 Background PM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	8	1	1	15	4	0	18	0	6	22	3
Future Vol, veh/h	11	8	1	1	15	4	0	18	0	6	22	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	10	1	1	19	5	0	23	0	8	28	4
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	76	67	29	70	69	23	31	0	0	23	0	0
Stage 1	44	44	-	23	23	-	-	-	-	-	-	-
Stage 2	32	23	-	48	46	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	913	824	1045	922	822	1054	1581	-	-	1593	-	-
Stage 1	970	858	-	996	876	-	-	-	-	-	-	-
Stage 2	985	876	-	966	856	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	884	820	1045	905	818	1054	1581	-	-	1593	-	-
Mov Cap-2 Maneuver	884	820	-	905	818	-	-	-	-	-	-	-
Stage 1	965	854	-	996	876	-	-	-	-	-	-	-
Stage 2	959	876	-	949	852	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Ctrl Dly, s/v	9.29		9.31			0			1.41			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1581	-	-	864	861	340	-	-				
HCM Lane V/C Ratio	-	-	-	0.029	0.029	0.005	-	-				
HCM Ctrl Dly (s/v)	0	-	-	9.3	9.3	7.3	0	-				
HCM Lane LOS	A	-	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-				

1: Frontier St & Tumbleweed Rd
2030 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	27	296	291	10	23	2
Future Vol, veh/h	27	296	291	10	23	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	85	90	90	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	348	323	11	29	3
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	334	0	-	0	745	329
Stage 1	-	-	-	-	329	-
Stage 2	-	-	-	-	416	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1225	-	-	-	382	713
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	666	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1225	-	-	-	371	713
Mov Cap-2 Maneuver	-	-	-	-	371	-
Stage 1	-	-	-	-	709	-
Stage 2	-	-	-	-	666	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.71	0		15.15		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1225	-	-	-	386	
HCM Lane V/C Ratio	0.028	-	-	-	0.081	
HCM Ctrl Dly (s/v)	8	-	-	-	15.1	
HCM Lane LOS	A	-	-	-	C	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3	

2: Battaglia Rd & Frontier St
2030 Total AM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	11.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	113	106	0	48	94	71	221	0	58	173	6
Future Vol, veh/h	10	113	106	0	48	94	71	221	0	58	173	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	225	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	80	85	85	80	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	133	125	0	56	111	89	260	0	73	204	7

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	818	790	207	853	793	260	211	0	0	260	0	0
Stage 1	352	352	-	438	438	-	-	-	-	-	-	-
Stage 2	466	438	-	415	356	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	295	323	833	279	321	779	1360	-	-	1304	-	-
Stage 1	665	632	-	598	579	-	-	-	-	-	-	-
Stage 2	577	579	-	615	629	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	183	285	833	118	283	779	1360	-	-	1304	-	-
Mov Cap-2 Maneuver	183	285	-	118	283	-	-	-	-	-	-	-
Stage 1	628	596	-	559	541	-	-	-	-	-	-	-
Stage 2	415	541	-	384	594	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	31.4		16.12		1.99		2.03	
HCM LOS	D		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1360	-	-	396	490	1304	-
HCM Lane V/C Ratio	0.065	-	-	0.681	0.341	0.056	-
HCM Ctrl Dly (s/v)	7.8	-	-	31.4	16.1	7.9	-
HCM Lane LOS	A	-	-	D	C	A	-
HCM 95th %tile Q(veh)	0.2	-	-	4.9	1.5	0.2	-

3: Battaglia Rd & 11 Mile Corner Rd
2030 Total AM

HCM 7th AWSC

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔			↔			↔	
Traffic Vol, veh/h	42	132	1	16	121	48	3	80	27	34	55	19
Future Vol, veh/h	42	132	1	16	121	48	3	80	27	34	55	19
Peak Hour Factor	0.85	0.85	0.80	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	49	155	1	19	142	56	4	94	32	40	65	22
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay, s/veh	10.8	9.9	9.3	9.4
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	3%	24%	0%	9%	31%
Vol Thru, %	73%	76%	0%	65%	51%
Vol Right, %	25%	0%	100%	26%	18%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	110	174	1	185	108
LT Vol	3	42	0	16	34
Through Vol	80	132	0	121	55
RT Vol	27	0	1	48	19
Lane Flow Rate	129	205	1	218	127
Geometry Grp	2	5	5	4a	2
Degree of Util (X)	0.181	0.313	0.002	0.292	0.181
Departure Headway (Hd)	5.039	5.505	4.678	4.83	5.139
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	705	647	757	738	691
Service Time	3.122	3.283	2.455	2.906	3.222
HCM Lane V/C Ratio	0.183	0.317	0.001	0.295	0.184
HCM Control Delay, s/veh	9.3	10.8	7.5	9.9	9.4
HCM Lane LOS	A	B	A	A	A
HCM 95th-tile Q	0.7	1.3	0	1.2	0.7

4: 11 Mile Corner Rd & Houser Rd
2030 Total AM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	0	76	0	4	3	15	104	0	1	97	11
Future Vol, veh/h	13	0	76	0	4	3	15	104	0	1	97	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	80	80	80	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	0	89	0	5	4	18	122	0	1	114	13

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	283	281	121	274	287	122	127	0	0	122	0	0
Stage 1	123	123	-	158	158	-	-	-	-	-	-	-
Stage 2	160	158	-	116	129	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	669	628	931	678	623	929	1459	-	-	1465	-	-
Stage 1	881	794	-	845	767	-	-	-	-	-	-	-
Stage 2	842	767	-	888	789	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	652	619	931	605	614	929	1459	-	-	1465	-	-
Mov Cap-2 Maneuver	652	619	-	605	614	-	-	-	-	-	-	-
Stage 1	880	793	-	834	757	-	-	-	-	-	-	-
Stage 2	822	757	-	802	788	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	9.67		10.07		0.95		0.07	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	227	-	-	876	718	16	-	-
HCM Lane V/C Ratio	0.012	-	-	0.12	0.012	0.001	-	-
HCM Ctrl Dly (s/v)	7.5	0	-	9.7	10.1	7.5	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0	0	-	-

5: Tumbleweed Rd & Houser Rd
2030 Total AM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	7.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	81	24	0	29	0	7	10	0	3	30	5
Future Vol, veh/h	5	81	24	0	29	0	7	10	0	3	30	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	95	28	0	36	0	9	13	0	4	38	6
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	96	78	41	123	81	13	44	0	0	13	0	0
Stage 1	48	48	-	30	30	-	-	-	-	-	-	-
Stage 2	48	30	-	93	51	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	886	812	1030	852	809	1068	1565	-	-	1606	-	-
Stage 1	965	855	-	987	870	-	-	-	-	-	-	-
Stage 2	965	870	-	914	852	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	840	806	1030	725	802	1068	1565	-	-	1606	-	-
Mov Cap-2 Maneuver	840	806	-	725	802	-	-	-	-	-	-	-
Stage 1	963	853	-	981	865	-	-	-	-	-	-	-
Stage 2	920	865	-	788	850	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Ctrl Dly, s/v	10.01		9.7			3.01			0.57			
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	741	-	-	848	802	138	-	-				
HCM Lane V/C Ratio	0.006	-	-	0.153	0.045	0.002	-	-				
HCM Ctrl Dly (s/v)	7.3	0	-	10	9.7	7.2	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.5	0.1	0	-	-				

6: Tumbleweed Rd & Driveway A
2030 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	8	10	27	29	23
Future Vol, veh/h	2	8	10	27	29	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	10	13	34	36	29

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	131	29	0	0	46	0
Stage 1	29	-	-	-	-	-
Stage 2	101	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	864	1045	-	-	1561	-
Stage 1	993	-	-	-	-	-
Stage 2	923	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	843	1045	-	-	1561	-
Mov Cap-2 Maneuver	843	-	-	-	-	-
Stage 1	993	-	-	-	-	-
Stage 2	901	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	8.64	0	4.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	843 1045	1004	-
HCM Lane V/C Ratio	-	-	0.003 0.01	0.023	-
HCM Ctrl Dly (s/v)	-	-	9.3 8.5	7.4	0
HCM Lane LOS	-	-	A A	A	A
HCM 95th %tile Q(veh)	-	-	0 0	0.1	-

7: Frontier St & Driveway B
2030 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	313	303	6	2	2
Future Vol, veh/h	6	313	303	6	2	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	348	337	7	3	3
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	343	0	-	0	701	340
Stage 1	-	-	-	-	340	-
Stage 2	-	-	-	-	361	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1216	-	-	-	405	702
Stage 1	-	-	-	-	721	-
Stage 2	-	-	-	-	705	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1216	-	-	-	402	702
Mov Cap-2 Maneuver	-	-	-	-	402	-
Stage 1	-	-	-	-	716	-
Stage 2	-	-	-	-	705	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.15	0		12.08		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	34	-	-	-	402	702
HCM Lane V/C Ratio	0.005	-	-	-	0.006	0.004
HCM Ctrl Dly (s/v)	8	0	-	-	14	10.1
HCM Lane LOS	A	A	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0	0

8: Frontier St & Driveway C
2030 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	85	230	303	18	7	6
Future Vol, veh/h	85	230	303	18	7	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	94	256	337	20	9	8
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	357	0	-	0	791	347
Stage 1	-	-	-	-	347	-
Stage 2	-	-	-	-	444	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1202	-	-	-	358	696
Stage 1	-	-	-	-	716	-
Stage 2	-	-	-	-	646	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1202	-	-	-	326	696
Mov Cap-2 Maneuver	-	-	-	-	326	-
Stage 1	-	-	-	-	650	-
Stage 2	-	-	-	-	646	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	2.23	0		13.53		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	486	-	-	-	326	696
HCM Lane V/C Ratio	0.079	-	-	-	0.027	0.011
HCM Ctrl Dly (s/v)	8.3	0	-	-	16.4	10.2
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.1	0

9: Frontier St & Driveway D
2030 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Vol, veh/h	0	237	310	16	0	11
Future Vol, veh/h	0	237	310	16	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	90	90	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	279	344	18	0	14
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	-	0	-	0	-	353
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	690
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	690
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		10.32		
HCM LOS	B					
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	690		
HCM Lane V/C Ratio	-	-	-	0.02		
HCM Ctrl Dly (s/v)	-	-	-	10.3		
HCM Lane LOS	-	-	-	B		
HCM 95th %tile Q(veh)	-	-	-	0.1		

10: 11 Mile Corner Rd & Driveway E
2030 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	5	41	129	104	12
Future Vol, veh/h	4	5	41	129	104	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	6	48	152	122	14
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	378	129	136	0	-	0
Stage 1	129	-	-	-	-	-
Stage 2	248	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	624	920	1448	-	-	-
Stage 1	897	-	-	-	-	-
Stage 2	793	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	601	920	1448	-	-	-
Mov Cap-2 Maneuver	601	-	-	-	-	-
Stage 1	864	-	-	-	-	-
Stage 2	793	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	9.87	1.83		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	434	-	601	920	-	-
HCM Lane V/C Ratio	0.033	-	0.008	0.007	-	-
HCM Ctrl Dly (s/v)	7.6	0	11	8.9	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	0	-	-

13: 11 Mile Corner Rd & Driveway H
2030 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	5	20	113	111	61
Future Vol, veh/h	8	5	20	113	111	61
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	6	24	133	131	72

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	346	166	202	0	-	0
Stage 1	166	-	-	-	-	-
Stage 2	180	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	650	878	1369	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	851	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	638	878	1369	-	-	-
Mov Cap-2 Maneuver	638	-	-	-	-	-
Stage 1	847	-	-	-	-	-
Stage 2	851	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.11	1.15	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	271	-	638	878	-	-
HCM Lane V/C Ratio	0.017	-	0.016	0.007	-	-
HCM Ctrl Dly (s/v)	7.7	0	10.7	9.1	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	0	-	-

1: Frontier St & Tumbleweed Rd
2030 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	254	352	18	24	6
Future Vol, veh/h	5	254	352	18	24	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	85	90	90	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	299	391	20	30	8

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	411	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	1148	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1148	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.17	0	14.17
HCM LOS	B		

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1148	-	-	-	430
HCM Lane V/C Ratio	0.005	-	-	-	0.087
HCM Ctrl Dly (s/v)	8.2	-	-	-	14.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

2: Battaglia Rd & Frontier St
2030 Total PM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	15											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	61	110	0	102	66	86	208	0	73	220	4
Future Vol, veh/h	22	61	110	0	102	66	86	208	0	73	220	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	225	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	80	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	72	129	0	120	78	101	245	0	91	259	5

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	951	891	261	924	893	245	264	0	0	245	0	0
Stage 1	444	444	-	447	447	-	-	-	-	-	-	-
Stage 2	507	447	-	477	446	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	240	282	777	250	281	794	1301	-	-	1321	-	-
Stage 1	593	575	-	591	573	-	-	-	-	-	-	-
Stage 2	548	573	-	569	574	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	100	242	777	131	241	794	1301	-	-	1321	-	-
Mov Cap-2 Maneuver	100	242	-	131	241	-	-	-	-	-	-	-
Stage 1	552	536	-	545	529	-	-	-	-	-	-	-
Stage 2	353	529	-	382	534	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	41.15		30.62		2.34		2.04	
HCM LOS	E		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1301	-	-	315 332	1321	-	-
HCM Lane V/C Ratio	0.078	-	-	0.721 0.596	0.069	-	-
HCM Ctrl Dly (s/v)	8	-	-	41.1 30.6	7.9	-	-
HCM Lane LOS	A	-	-	E D	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	5.2 3.6	0.2	-	-

3: Battaglia Rd & 11 Mile Corner Rd
2030 Total PM

HCM 7th AWSC

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	119	1	19	131	26	3	38	24	61	80	39
Future Vol, veh/h	15	119	1	19	131	26	3	38	24	61	80	39
Peak Hour Factor	0.85	0.85	0.80	0.85	0.85	0.85	0.80	0.80	0.80	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	140	1	22	154	31	4	48	30	72	94	46
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay, s/veh	10.1	9.9	8.6	10
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	5%	11%	0%	11%	34%
Vol Thru, %	58%	89%	0%	74%	44%
Vol Right, %	37%	0%	100%	15%	22%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	65	134	1	176	180
LT Vol	3	15	0	19	61
Through Vol	38	119	0	131	80
RT Vol	24	0	1	26	39
Lane Flow Rate	81	158	1	207	212
Geometry Grp	2	5	5	4a	2
Degree of Util (X)	0.111	0.242	0.002	0.283	0.289
Departure Headway (Hd)	4.939	5.517	4.754	4.912	4.905
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	718	646	745	725	726
Service Time	3.023	3.294	2.531	2.986	2.972
HCM Lane V/C Ratio	0.113	0.245	0.001	0.286	0.292
HCM Control Delay, s/veh	8.6	10.1	7.5	9.9	10
HCM Lane LOS	A	B	A	A	A
HCM 95th-tile Q	0.4	0.9	0	1.2	1.2

4: 11 Mile Corner Rd & Houser Rd
2030 Total PM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	1	15	4	3	1	62	72	0	1	107	9
Future Vol, veh/h	6	1	15	4	3	1	62	72	0	1	107	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	1	19	5	4	1	73	85	0	1	126	11

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	366	364	131	359	369	85	136	0	0	85	0	0
Stage 1	134	134	-	231	231	-	-	-	-	-	-	-
Stage 2	232	231	-	129	139	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	590	564	918	596	560	974	1448	-	-	1512	-	-
Stage 1	870	786	-	772	714	-	-	-	-	-	-	-
Stage 2	771	714	-	875	782	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	554	534	918	551	530	974	1448	-	-	1512	-	-
Mov Cap-2 Maneuver	554	534	-	551	530	-	-	-	-	-	-	-
Stage 1	869	785	-	731	676	-	-	-	-	-	-	-
Stage 2	725	676	-	855	781	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	9.93		11.39		3.53		0.06	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	833	-	-	758 574	15	-	-
HCM Lane V/C Ratio	0.05	-	-	0.036 0.017	0.001	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	9.9 11.4	7.4	0	-
HCM Lane LOS	A	A	-	A B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1 0.1	0	-	-

5: Tumbleweed Rd & Houser Rd
2030 Total PM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	7.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	18	10	1	69	4	23	24	0	6	24	3
Future Vol, veh/h	11	18	10	1	69	4	23	24	0	6	24	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	23	13	1	86	5	29	30	0	8	30	4
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	178	134	32	144	136	30	34	0	0	30	0	0
Stage 1	47	47	-	88	88	-	-	-	-	-	-	-
Stage 2	131	88	-	56	49	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	785	756	1042	825	755	1044	1578	-	-	1583	-	-
Stage 1	967	856	-	920	822	-	-	-	-	-	-	-
Stage 2	873	822	-	956	854	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	675	739	1042	773	737	1044	1578	-	-	1583	-	-
Mov Cap-2 Maneuver	675	739	-	773	737	-	-	-	-	-	-	-
Stage 1	962	852	-	903	807	-	-	-	-	-	-	-
Stage 2	762	807	-	915	850	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Ctrl Dly, s/v	9.95		10.48			3.58			1.32			
HCM LOS	A		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	881	-	-	776	749	320	-	-				
HCM Lane V/C Ratio	0.018	-	-	0.063	0.123	0.005	-	-				
HCM Ctrl Dly (s/v)	7.3	0	-	9.9	10.5	7.3	0	-				
HCM Lane LOS	A	A	-	A	B	A	A	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.4	0	-	-				

6: Tumbleweed Rd & Driveway A
2030 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	4.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	29	18	5	11	24
Future Vol, veh/h	6	29	18	5	11	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	36	23	6	14	30
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	83	26	0	0	29	0
Stage 1	26	-	-	-	-	-
Stage 2	58	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	919	1050	-	-	1584	-
Stage 1	997	-	-	-	-	-
Stage 2	965	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	911	1050	-	-	1584	-
Mov Cap-2 Maneuver	911	-	-	-	-	-
Stage 1	997	-	-	-	-	-
Stage 2	957	-	-	-	-	-
Approach	WB	NB	SB			
HCM Ctrl Dly, s/v	8.62	0	2.29			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 911 1050	566	-		
HCM Lane V/C Ratio	-	- 0.008 0.035	0.009	-		
HCM Ctrl Dly (s/v)	-	- 9 8.6	7.3	0		
HCM Lane LOS	-	- A A	A	A		
HCM 95th %tile Q(veh)	-	- 0 0.1	0	-		

7: Frontier St & Driveway B
2030 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	285	370	2	6	6
Future Vol, veh/h	2	285	370	2	6	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	90	90	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	335	411	2	8	8
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	413	0	-	0	752	412
Stage 1	-	-	-	-	412	-
Stage 2	-	-	-	-	340	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1146	-	-	-	378	640
Stage 1	-	-	-	-	668	-
Stage 2	-	-	-	-	721	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1146	-	-	-	377	640
Mov Cap-2 Maneuver	-	-	-	-	377	-
Stage 1	-	-	-	-	667	-
Stage 2	-	-	-	-	721	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.06	0		12.72		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	13	-	-	-	377	640
HCM Lane V/C Ratio	0.002	-	-	-	0.02	0.012
HCM Ctrl Dly (s/v)	8.1	0	-	-	14.7	10.7
HCM Lane LOS	A	A	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0

8: Frontier St & Driveway C
2030 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	274	347	7	23	25
Future Vol, veh/h	17	274	347	7	23	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	90	90	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	322	386	8	29	31
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	393	0	-	0	752	389
Stage 1	-	-	-	-	389	-
Stage 2	-	-	-	-	362	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1165	-	-	-	378	659
Stage 1	-	-	-	-	685	-
Stage 2	-	-	-	-	704	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1165	-	-	-	370	659
Mov Cap-2 Maneuver	-	-	-	-	370	-
Stage 1	-	-	-	-	670	-
Stage 2	-	-	-	-	704	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.48	0		13.04		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	105	-	-	-	370	659
HCM Lane V/C Ratio	0.017	-	-	-	0.078	0.047
HCM Ctrl Dly (s/v)	8.1	0	-	-	15.5	10.7
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3	0.1

9: Frontier St & Driveway D
2030 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Vol, veh/h	0	297	292	3	0	62
Future Vol, veh/h	0	297	292	3	0	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	349	344	4	0	78
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	-	0	-	0	-	345
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	698
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	698
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		10.8		
HCM LOS	B					
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	698		
HCM Lane V/C Ratio	-	-	-	0.111		
HCM Ctrl Dly (s/v)	-	-	-	10.8		
HCM Lane LOS	-	-	-	B		
HCM 95th %tile Q(veh)	-	-	-	0.4		

10: 11 Mile Corner Rd & Driveway E
2030 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	28	8	71	152	5
Future Vol, veh/h	12	28	8	71	152	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	35	9	84	179	6
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	284	182	185	0	-	0
Stage 1	182	-	-	-	-	-
Stage 2	102	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	706	861	1390	-	-	-
Stage 1	849	-	-	-	-	-
Stage 2	922	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	701	861	1390	-	-	-
Mov Cap-2 Maneuver	701	-	-	-	-	-
Stage 1	843	-	-	-	-	-
Stage 2	922	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	9.63	0.77		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	182	-	701	861	-	-
HCM Lane V/C Ratio	0.007	-	0.021	0.041	-	-
HCM Ctrl Dly (s/v)	7.6	0	10.2	9.4	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0.1	-	-

13: 11 Mile Corner Rd & Driveway H
2030 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	2.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	48	32	3	80	125	8
Future Vol, veh/h	48	32	3	80	125	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	60	40	4	94	147	9
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	253	152	156	0	-	0
Stage 1	152	-	-	-	-	-
Stage 2	101	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	736	894	1423	-	-	-
Stage 1	876	-	-	-	-	-
Stage 2	923	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	734	894	1423	-	-	-
Mov Cap-2 Maneuver	734	-	-	-	-	-
Stage 1	874	-	-	-	-	-
Stage 2	923	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	9.89	0.27		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	65	-	734	894	-	-
HCM Lane V/C Ratio	0.002	-	0.082	0.045	-	-
HCM Ctrl Dly (s/v)	7.5	0	10.3	9.2	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.3	0.1	-	-

APPENDIX H: 2035 LEVEL OF SERVICE ANALYSIS

1: Frontier St & Tumbleweed Rd
2035 Background AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	249	331	12	28	0
Future Vol, veh/h	0	249	331	12	28	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	85	90	90	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	293	368	13	35	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	381	0	-	0	667	374
Stage 1	-	-	-	-	374	-
Stage 2	-	-	-	-	293	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1177	-	-	-	424	672
Stage 1	-	-	-	-	695	-
Stage 2	-	-	-	-	757	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1177	-	-	-	424	672
Mov Cap-2 Maneuver	-	-	-	-	424	-
Stage 1	-	-	-	-	695	-
Stage 2	-	-	-	-	757	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		14.26		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1177	-	-	-	424	
HCM Lane V/C Ratio	-	-	-	-	0.083	
HCM Ctrl Dly (s/v)	0	-	-	-	14.3	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.3	

2: Battaglia Rd & Frontier St
2035 Background AM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	24.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	137	129	0	58	95	86	240	0	68	202	8
Future Vol, veh/h	12	137	129	0	58	95	86	240	0	68	202	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	225	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	80	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	161	152	0	68	112	101	282	0	85	238	9

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	931	897	242	973	902	282	247	0	0	282	0	0
Stage 1	412	412	-	485	485	-	-	-	-	-	-	-
Stage 2	519	485	-	488	417	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	247	279	796	231	278	757	1319	-	-	1280	-	-
Stage 1	617	594	-	564	552	-	-	-	-	-	-	-
Stage 2	540	552	-	561	591	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	135	241	796	59	239	757	1319	-	-	1280	-	-
Mov Cap-2 Maneuver	135	241	-	59	239	-	-	-	-	-	-	-
Stage 1	576	555	-	520	509	-	-	-	-	-	-	-
Stage 2	368	509	-	301	552	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	75.96		20.11		2.1		2.05	
HCM LOS	F		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1319	-	-	339 416	1280	-	-
HCM Lane V/C Ratio	0.077	-	-	0.964 0.433	0.066	-	-
HCM Ctrl Dly (s/v)	8	-	-	76 20.1	8	-	-
HCM Lane LOS	A	-	-	F C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	10.3 2.1	0.2	-	-

3: Battaglia Rd & 11 Mile Corner Rd
2035 Background AM

HCM 7th AWSC

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	51	159	2	20	128	34	3	48	32	37	60	23
Future Vol, veh/h	51	159	2	20	128	34	3	48	32	37	60	23
Peak Hour Factor	0.85	0.85	0.80	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	60	187	3	24	151	40	4	56	38	44	71	27
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay, s/veh	11.5	10	9	9.6
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	4%	24%	0%	11%	31%
Vol Thru, %	58%	76%	0%	70%	50%
Vol Right, %	39%	0%	100%	19%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	83	210	2	182	120
LT Vol	3	51	0	20	37
Through Vol	48	159	0	128	60
RT Vol	32	0	2	34	23
Lane Flow Rate	98	247	3	214	141
Geometry Grp	2	5	5	4a	2
Degree of Util (X)	0.138	0.375	0.003	0.291	0.203
Departure Headway (Hd)	5.09	5.462	4.634	4.894	5.188
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	696	655	764	726	685
Service Time	3.181	3.24	2.412	2.975	3.273
HCM Lane V/C Ratio	0.141	0.377	0.004	0.295	0.206
HCM Control Delay, s/veh	9	11.5	7.4	10	9.6
HCM Lane LOS	A	B	A	A	A
HCM 95th-tile Q	0.5	1.7	0	1.2	0.8

4: 11 Mile Corner Rd & Houser Rd
2035 Background AM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	0	11	0	5	3	6	125	0	2	111	14
Future Vol, veh/h	15	0	11	0	5	3	6	125	0	2	111	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	0	14	0	6	4	7	147	0	2	131	16

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	308	305	139	296	313	147	147	0	0	147	0	0
Stage 1	144	144	-	161	161	-	-	-	-	-	-	-
Stage 2	164	161	-	135	152	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	645	609	909	656	602	900	1435	-	-	1435	-	-
Stage 1	859	778	-	841	765	-	-	-	-	-	-	-
Stage 2	838	765	-	868	772	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	631	604	909	641	598	900	1435	-	-	1435	-	-
Mov Cap-2 Maneuver	631	604	-	641	598	-	-	-	-	-	-	-
Stage 1	858	777	-	836	761	-	-	-	-	-	-	-
Stage 2	823	761	-	853	770	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.2	10.34	0.34	0.12
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	82	-	-	725 684	28	-	-
HCM Lane V/C Ratio	0.005	-	-	0.045 0.015	0.002	-	-
HCM Ctrl Dly (s/v)	7.5	0	-	10.2 10.3	7.5	0	-
HCM Lane LOS	A	A	-	B B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1 0	0	-	-

5: Tumbleweed Rd & Houser Rd
2035 Background AM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	17	2	0	23	0	2	9	0	3	29	6
Future Vol, veh/h	6	17	2	0	23	0	2	9	0	3	29	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	21	3	0	29	0	3	11	0	4	36	8
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	78	64	40	71	68	11	44	0	0	11	0	0
Stage 1	48	48	-	16	16	-	-	-	-	-	-	-
Stage 2	31	16	-	54	51	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	911	827	1031	921	823	1070	1565	-	-	1608	-	-
Stage 1	966	855	-	1003	882	-	-	-	-	-	-	-
Stage 2	986	882	-	958	852	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	875	824	1031	892	820	1070	1565	-	-	1608	-	-
Mov Cap-2 Maneuver	875	824	-	892	820	-	-	-	-	-	-	-
Stage 1	964	853	-	1002	880	-	-	-	-	-	-	-
Stage 2	952	880	-	930	850	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Ctrl Dly, s/v	9.4		9.55			1.33			0.57			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	327	-	-	849	820	137	-	-				
HCM Lane V/C Ratio	0.002	-	-	0.037	0.035	0.002	-	-				
HCM Ctrl Dly (s/v)	7.3	0	-	9.4	9.6	7.2	0	-				
HCM Lane LOS	A	A	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-				

1: Frontier St & Tumbleweed Rd
2035 Background PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	286	316	22	29	0
Future Vol, veh/h	0	286	316	22	29	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	85	90	90	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	336	351	24	36	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	376	0	-	0	700	363
Stage 1	-	-	-	-	363	-
Stage 2	-	-	-	-	336	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1183	-	-	-	406	682
Stage 1	-	-	-	-	703	-
Stage 2	-	-	-	-	724	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1183	-	-	-	406	682
Mov Cap-2 Maneuver	-	-	-	-	406	-
Stage 1	-	-	-	-	703	-
Stage 2	-	-	-	-	724	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		14.75		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1183	-	-	-	406	
HCM Lane V/C Ratio	-	-	-	-	0.089	
HCM Ctrl Dly (s/v)	0	-	-	-	14.7	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.3	

2: Battaglia Rd & Frontier St
2035 Background PM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	62.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↵	↵		↵	↵	
Traffic Vol, veh/h	26	74	134	0	125	77	105	242	0	82	240	5
Future Vol, veh/h	26	74	134	0	125	77	105	242	0	82	240	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	225	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	87	158	0	147	91	124	285	0	96	282	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1084	1010	285	1051	1013	285	288	0	0	285	0	0
Stage 1	478	478	-	532	532	-	-	-	-	-	-	-
Stage 2	605	532	-	519	481	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	195	240	754	205	239	754	1274	-	-	1278	-	-
Stage 1	568	555	-	531	526	-	-	-	-	-	-	-
Stage 2	484	526	-	540	554	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	43	200	754	82	199	754	1274	-	-	1278	-	-
Mov Cap-2 Maneuver	43	200	-	82	199	-	-	-	-	-	-	-
Stage 1	525	513	-	480	475	-	-	-	-	-	-	-
Stage 2	266	475	-	328	512	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	235.74		63.66		2.46		2.02	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1274	-	-	202	277	1278	-	-
HCM Lane V/C Ratio	0.097	-	-	1.36	0.858	0.076	-	-
HCM Ctrl Dly (s/v)	8.1	-	-	235.7	63.7	8	-	-
HCM Lane LOS	A	-	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	15.7	7.3	0.2	-	-

3: Battaglia Rd & 11 Mile Corner Rd
2035 Background PM

HCM 7th AWSC

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	137	2	23	155	28	3	37	29	45	54	48
Future Vol, veh/h	18	137	2	23	155	28	3	37	29	45	54	48
Peak Hour Factor	0.85	0.85	0.80	0.85	0.85	0.85	0.80	0.80	0.80	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	161	3	27	182	33	4	46	36	53	64	56
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay, s/veh	10.4	10.3	8.8	9.6
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	4%	12%	0%	11%	31%
Vol Thru, %	54%	88%	0%	75%	37%
Vol Right, %	42%	0%	100%	14%	33%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	69	155	2	206	147
LT Vol	3	18	0	23	45
Through Vol	37	137	0	155	54
RT Vol	29	0	2	28	48
Lane Flow Rate	86	182	3	242	173
Geometry Grp	2	5	5	4a	2
Degree of Util (X)	0.12	0.277	0.003	0.328	0.239
Departure Headway (Hd)	5.003	5.466	4.701	4.871	4.983
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	709	653	753	732	714
Service Time	3.09	3.245	2.48	2.946	3.058
HCM Lane V/C Ratio	0.121	0.279	0.004	0.331	0.242
HCM Control Delay, s/veh	8.8	10.4	7.5	10.3	9.6
HCM Lane LOS	A	B	A	B	A
HCM 95th-tile Q	0.4	1.1	0	1.4	0.9

4: 11 Mile Corner Rd & Houser Rd
2035 Background PM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	2	6	5	3	2	9	80	0	2	128	11
Future Vol, veh/h	8	2	6	5	3	2	9	80	0	2	128	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	3	8	6	4	3	11	94	0	2	151	13

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	279	277	157	272	284	94	164	0	0	94	0	0
Stage 1	162	162	-	115	115	-	-	-	-	-	-	-
Stage 2	117	115	-	157	168	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	673	631	888	681	625	963	1415	-	-	1500	-	-
Stage 1	840	764	-	889	800	-	-	-	-	-	-	-
Stage 2	887	800	-	846	759	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	661	625	888	666	619	963	1415	-	-	1500	-	-
Mov Cap-2 Maneuver	661	625	-	666	619	-	-	-	-	-	-	-
Stage 1	839	763	-	882	794	-	-	-	-	-	-	-
Stage 2	874	794	-	834	758	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.1	10.29	0.76	0.11
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	182	-	-	725	693	25	-
HCM Lane V/C Ratio	0.007	-	-	0.028	0.018	0.002	-
HCM Ctrl Dly (s/v)	7.6	0	-	10.1	10.3	7.4	0
HCM Lane LOS	A	A	-	B	B	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-

5: Tumbleweed Rd & Houser Rd
2035 Background PM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	9	2	2	18	5	0	22	0	8	26	3
Future Vol, veh/h	14	9	2	2	18	5	0	22	0	8	26	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	11	3	3	23	6	0	28	0	10	33	4
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	93	82	34	86	84	28	36	0	0	28	0	0
Stage 1	54	54	-	28	28	-	-	-	-	-	-	-
Stage 2	39	28	-	58	56	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	890	808	1039	901	806	1048	1575	-	-	1586	-	-
Stage 1	958	850	-	990	872	-	-	-	-	-	-	-
Stage 2	976	872	-	954	848	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	855	803	1039	880	801	1048	1575	-	-	1586	-	-
Mov Cap-2 Maneuver	855	803	-	880	801	-	-	-	-	-	-	-
Stage 1	952	844	-	990	872	-	-	-	-	-	-	-
Stage 2	945	872	-	933	843	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Ctrl Dly, s/v	9.41		9.41			0			1.57			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1575	-	-	847	847	381	-	-				
HCM Lane V/C Ratio	-	-	-	0.037	0.037	0.006	-	-				
HCM Ctrl Dly (s/v)	0	-	-	9.4	9.4	7.3	0	-				
HCM Lane LOS	A	-	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-				

1: Frontier St & Tumbleweed Rd
2035 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	6.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	117	542	519	35	57	71
Future Vol, veh/h	117	542	519	35	57	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	90	90	90	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	138	602	577	39	67	84
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	616	0	-	0	1474	596
Stage 1	-	-	-	-	596	-
Stage 2	-	-	-	-	878	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	964	-	-	-	139	503
Stage 1	-	-	-	-	550	-
Stage 2	-	-	-	-	407	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	964	-	-	-	120	503
Mov Cap-2 Maneuver	-	-	-	-	120	-
Stage 1	-	-	-	-	472	-
Stage 2	-	-	-	-	407	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	1.74	0		58.17		
HCM LOS	F					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	964	-	-	-	207	
HCM Lane V/C Ratio	0.143	-	-	-	0.727	
HCM Ctrl Dly (s/v)	9.4	-	-	-	58.2	
HCM Lane LOS	A	-	-	-	F	
HCM 95th %tile Q(veh)	0.5	-	-	-	4.8	

2: Battaglia Rd & Frontier St
2035 Total AM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	69.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	137	129	0	58	201	86	322	0	146	235	8
Future Vol, veh/h	12	137	129	0	58	201	86	322	0	146	235	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	225	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	90	90	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	161	152	0	68	236	101	358	0	172	276	9

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1219	1185	281	1261	1190	358	286	0	0	358	0	0
Stage 1	625	625	-	560	560	-	-	-	-	-	-	-
Stage 2	594	560	-	701	629	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	157	189	758	147	188	686	1276	-	-	1201	-	-
Stage 1	473	477	-	513	510	-	-	-	-	-	-	-
Stage 2	491	510	-	430	475	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	49	~ 149	758	-	148	686	1276	-	-	1201	-	-
Mov Cap-2 Maneuver	49	~ 149	-	-	148	-	-	-	-	-	-	-
Stage 1	405	409	-	472	470	-	-	-	-	-	-	-
Stage 2	253	470	-	178	407	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	\$ 320.83		1.78	3.19
HCM LOS	F	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1276	-	-	208	-	1201	-
HCM Lane V/C Ratio	0.079	-	-	1.572	-	0.143	-
HCM Ctrl Dly (s/v)	8.1	-	-	\$ 320.8	-	8.5	-
HCM Lane LOS	A	-	-	F	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	20.8	-	0.5	-

Notes	
~: Volume exceeds capacity	\$. Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

3: Battaglia Rd & 11 Mile Corner Rd
2035 Total AM

HCM 7th AWSC

Intersection	
Intersection Delay, s/veh	29
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	119	169	2	20	172	107	3	181	32	123	138	85
Future Vol, veh/h	119	169	2	20	172	107	3	181	32	123	138	85
Peak Hour Factor	0.85	0.85	0.80	0.90	0.90	0.90	0.85	0.85	0.85	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	140	199	3	22	191	119	4	213	38	137	153	94
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay, s/veh	33.2	26.4	20.4	33.3
HCM LOS	D	D	C	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	1%	41%	0%	7%	36%
Vol Thru, %	84%	59%	0%	58%	40%
Vol Right, %	15%	0%	100%	36%	25%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	216	288	2	299	346
LT Vol	3	119	0	20	123
Through Vol	181	169	0	172	138
RT Vol	32	0	2	107	85
Lane Flow Rate	254	339	3	332	384
Geometry Grp	2	5	5	4a	2
Degree of Util (X)	0.555	0.769	0.005	0.698	0.792
Departure Headway (Hd)	7.858	8.175	7.239	7.561	7.42
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	457	444	495	478	488
Service Time	5.929	5.916	4.98	5.605	5.464
HCM Lane V/C Ratio	0.556	0.764	0.006	0.695	0.787
HCM Control Delay, s/veh	20.4	33.4	10	26.4	33.3
HCM Lane LOS	C	D	A	D	D
HCM 95th-tile Q	3.3	6.6	0	5.3	7.2

4: 11 Mile Corner Rd & Houser Rd
2035 Total AM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	0	159	0	5	3	91	128	0	2	122	14
Future Vol, veh/h	15	0	159	0	5	3	91	128	0	2	122	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	80	80	80	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	187	0	6	4	107	151	0	2	144	16

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	524	521	152	513	529	151	160	0	0	151	0	0
Stage 1	156	156	-	365	365	-	-	-	-	-	-	-
Stage 2	368	365	-	148	165	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	464	460	894	472	455	896	1419	-	-	1430	-	-
Stage 1	846	768	-	654	623	-	-	-	-	-	-	-
Stage 2	652	623	-	854	762	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	417	421	894	342	417	896	1419	-	-	1430	-	-
Mov Cap-2 Maneuver	417	421	-	342	417	-	-	-	-	-	-	-
Stage 1	844	767	-	601	572	-	-	-	-	-	-	-
Stage 2	589	572	-	674	761	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.9	12.04	3.22	0.11
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	748	-	-	814	521	26	-
HCM Lane V/C Ratio	0.075	-	-	0.251	0.019	0.002	-
HCM Ctrl Dly (s/v)	7.7	0	-	10.9	12	7.5	0
HCM Lane LOS	A	A	-	B	B	A	A
HCM 95th %tile Q(veh)	0.2	-	-	1	0.1	0	-

5: Tumbleweed Rd & Houser Rd
2035 Total AM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	9.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	155	47	42	66	0	13	20	10	3	54	6
Future Vol, veh/h	6	155	47	42	66	0	13	20	10	3	54	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	182	55	49	78	0	16	25	13	4	68	8

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	175	149	71	230	146	31	75	0	0	38	0	0
Stage 1	79	79	-	64	64	-	-	-	-	-	-	-
Stage 2	96	70	-	166	83	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	788	743	991	725	745	1043	1524	-	-	1573	-	-
Stage 1	930	829	-	947	842	-	-	-	-	-	-	-
Stage 2	910	837	-	836	826	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	696	733	991	509	735	1043	1524	-	-	1573	-	-
Mov Cap-2 Maneuver	696	733	-	509	735	-	-	-	-	-	-	-
Stage 1	928	827	-	937	833	-	-	-	-	-	-	-
Stage 2	816	828	-	614	824	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	11.74		12.2		2.23		0.35	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	510	-	-	777 627	84	-	-
HCM Lane V/C Ratio	0.011	-	-	0.315 0.203	0.002	-	-
HCM Ctrl Dly (s/v)	7.4	0	-	11.7 12.2	7.3	0	-
HCM Lane LOS	A	A	-	B B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.4 0.8	0	-	-

6: Tumbleweed Rd & Driveway A
2035 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	3.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	50	18	26	126	63	77
Future Vol, veh/h	50	18	26	126	63	77
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	63	23	31	148	74	91
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	344	105	0	0	179	0
Stage 1	105	-	-	-	-	-
Stage 2	239	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	653	950	-	-	1397	-
Stage 1	920	-	-	-	-	-
Stage 2	801	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	616	950	-	-	1397	-
Mov Cap-2 Maneuver	616	-	-	-	-	-
Stage 1	920	-	-	-	-	-
Stage 2	756	-	-	-	-	-
Approach	WB	NB	SB			
HCM Ctrl Dly, s/v	10.81	0	3.47			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	-	616	950	810	-
HCM Lane V/C Ratio	-	-	0.101	0.024	0.053	-
HCM Ctrl Dly (s/v)	-	-	11.5	8.9	7.7	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	0.2	-

7: Frontier St & Driveway B
2035 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	24	573	541	43	10	18
Future Vol, veh/h	24	573	541	43	10	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	637	601	48	13	23
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	649	0	-	0	1315	625
Stage 1	-	-	-	-	625	-
Stage 2	-	-	-	-	690	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	937	-	-	-	174	485
Stage 1	-	-	-	-	534	-
Stage 2	-	-	-	-	498	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	937	-	-	-	167	485
Mov Cap-2 Maneuver	-	-	-	-	167	-
Stage 1	-	-	-	-	510	-
Stage 2	-	-	-	-	498	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.36	0		18.35		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	72	-	-	-	167	485
HCM Lane V/C Ratio	0.028	-	-	-	0.075	0.046
HCM Ctrl Dly (s/v)	9	0	-	-	28.4	12.8
HCM Lane LOS	A	A	-	-	D	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	0.1

8: Frontier St & Driveway C
2035 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	206	377	574	33	11	10
Future Vol, veh/h	206	377	574	33	11	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	229	419	638	37	14	13
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	674	0	-	0	1533	656
Stage 1	-	-	-	-	656	-
Stage 2	-	-	-	-	877	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	917	-	-	-	128	465
Stage 1	-	-	-	-	516	-
Stage 2	-	-	-	-	407	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	917	-	-	-	87	465
Mov Cap-2 Maneuver	-	-	-	-	87	-
Stage 1	-	-	-	-	348	-
Stage 2	-	-	-	-	407	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	3.61	0		34.6		
HCM LOS				D		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	636	-	-	-	87	465
HCM Lane V/C Ratio	0.25	-	-	-	0.159	0.027
HCM Ctrl Dly (s/v)	10.2	0	-	-	54.3	12.9
HCM Lane LOS	B	A	-	-	F	B
HCM 95th %tile Q(veh)	1	-	-	-	0.5	0.1

9: Frontier St & Driveway D
2035 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Vol, veh/h	0	388	505	31	0	102
Future Vol, veh/h	0	388	505	31	0	102
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	431	561	34	0	120
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	-	0	-	0	-	578
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	515
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	515
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		14.09		
HCM LOS	B					
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	515		
HCM Lane V/C Ratio	-	-	-	0.233		
HCM Ctrl Dly (s/v)	-	-	-	14.1		
HCM Lane LOS	-	-	-	B		
HCM 95th %tile Q(veh)	-	-	-	0.9		

10: 11 Mile Corner Rd & Driveway E
2035 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	3.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	72	185	221	271	24
Future Vol, veh/h	14	72	185	221	271	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	90	90	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	90	206	246	319	28
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	990	333	347	0	-	0
Stage 1	333	-	-	-	-	-
Stage 2	657	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	273	709	1212	-	-	-
Stage 1	726	-	-	-	-	-
Stage 2	516	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	220	709	1212	-	-	-
Mov Cap-2 Maneuver	220	-	-	-	-	-
Stage 1	584	-	-	-	-	-
Stage 2	516	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	12.77	3.91		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	820	-	220	709	-	-
HCM Lane V/C Ratio	0.17	-	0.08	0.127	-	-
HCM Ctrl Dly (s/v)	8.6	0	22.8	10.8	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.6	-	0.3	0.4	-	-

11: 11 Mile Corner Rd & Driveway F
2035 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	78	24	211	217	3
Future Vol, veh/h	9	78	24	211	217	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	92	28	248	255	4
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	562	257	259	0	-	0
Stage 1	257	-	-	-	-	-
Stage 2	305	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	488	782	1306	-	-	-
Stage 1	786	-	-	-	-	-
Stage 2	748	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	476	782	1306	-	-	-
Mov Cap-2 Maneuver	476	-	-	-	-	-
Stage 1	766	-	-	-	-	-
Stage 2	748	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	10.49	0.8		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	184	-	476	782	-	-
HCM Lane V/C Ratio	0.022	-	0.024	0.117	-	-
HCM Ctrl Dly (s/v)	7.8	0	12.7	10.2	-	-
HCM Lane LOS	A	A	B	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	0.4	-	-

12: 11 Mile Corner Rd & Driveway G
2035 Total AM

HCM 7th TWSC

Intersection

Int Delay, s/veh 1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	36	18	202	184	2
Future Vol, veh/h	30	36	18	202	184	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	45	21	238	216	2

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	498	218	219	0	-	0
Stage 1	218	-	-	-	-	-
Stage 2	280	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	532	822	1351	-	-	-
Stage 1	819	-	-	-	-	-
Stage 2	767	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	522	822	1351	-	-	-
Mov Cap-2 Maneuver	522	-	-	-	-	-
Stage 1	804	-	-	-	-	-
Stage 2	767	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.9	0.63	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	147	-	522	822	-	-
HCM Lane V/C Ratio	0.016	-	0.072	0.055	-	-
HCM Ctrl Dly (s/v)	7.7	0	12.4	9.6	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	0.2	-	-

13: 11 Mile Corner Rd & Driveway H
2035 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	13	47	185	173	122
Future Vol, veh/h	35	13	47	185	173	122
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	16	55	218	204	144
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	604	275	347	0	-	0
Stage 1	275	-	-	-	-	-
Stage 2	328	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	462	763	1212	-	-	-
Stage 1	771	-	-	-	-	-
Stage 2	730	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	438	763	1212	-	-	-
Mov Cap-2 Maneuver	438	-	-	-	-	-
Stage 1	731	-	-	-	-	-
Stage 2	730	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	12.97	1.64		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	365	-	438	763	-	-
HCM Lane V/C Ratio	0.046	-	0.1	0.021	-	-
HCM Ctrl Dly (s/v)	8.1	0	14.1	9.8	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	0.1	-	-

14: 11 Mile Corner Rd & Driveway I
2035 Total AM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑	↘	
Traffic Vol, veh/h	0	24	0	220	271	8
Future Vol, veh/h	0	24	0	220	271	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	30	0	259	319	9
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	324	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	717	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	717	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	10.24	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT EBLn1		SBT	SBR		
Capacity (veh/h)	- 717		-	-		
HCM Lane V/C Ratio	- 0.042		-	-		
HCM Ctrl Dly (s/v)	- 10.2		-	-		
HCM Lane LOS	- B		-	-		
HCM 95th %tile Q(veh)	- 0.1		-	-		

1: Frontier St & Tumbleweed Rd
2035 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	281.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	176	652	825	89	144	150
Future Vol, veh/h	176	652	825	89	144	150
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	90	90	90	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	207	724	917	99	169	176

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1016	0	0 2105 966
Stage 1	-	-	- 966 -
Stage 2	-	-	- 1139 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	683	-	- ~ 57 309
Stage 1	-	-	- 369 -
Stage 2	-	-	- 305 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	683	-	- ~ 39 309
Mov Cap-2 Maneuver	-	-	- ~ 39 -
Stage 1	-	-	- 257 -
Stage 2	-	-	- 305 -

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	2.79	0	\$ 1858.63
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	683	-	-	-	71
HCM Lane V/C Ratio	0.303	-	-	-	4.87
HCM Ctrl Dly (s/v)	12.5	-	-	-	\$ 1858.6
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	1.3	-	-	-	37.8

Notes	
~: Volume exceeds capacity	\$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

2: Battaglia Rd & Frontier St
2035 Total PM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	26	74	134	0	125	151	105	347	0	329	377	5
Future Vol, veh/h	26	74	134	0	125	151	105	347	0	329	377	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	225	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	87	158	0	147	178	124	386	0	366	419	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1859	1785	422	1826	1788	386	424	0	0	386	0	0
Stage 1	1153	1153	-	633	633	-	-	-	-	-	-	-
Stage 2	706	633	-	1194	1156	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	56	~ 81	632	59	~ 81	662	1135	-	-	1173	-	-
Stage 1	240	272	-	468	474	-	-	-	-	-	-	-
Stage 2	427	474	-	228	271	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	-	~ 50	632	-	~ 50	662	1135	-	-	1173	-	-
Mov Cap-2 Maneuver	-	~ 50	-	-	~ 50	-	-	-	-	-	-	-
Stage 1	165	187	-	417	422	-	-	-	-	-	-	-
Stage 2	181	422	-	63	187	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v			2.08	4.37
HCM LOS	-	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1135	-	-	-	1173	-	-
HCM Lane V/C Ratio	0.109	-	-	-	0.312	-	-
HCM Ctrl Dly (s/v)	8.6	-	-	-	9.5	-	-
HCM Lane LOS	A	-	-	-	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	-	1.3	-	-

Notes	
~: Volume exceeds capacity	\$. Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

3: Battaglia Rd & 11 Mile Corner Rd
2035 Total PM

HCM 7th AWSC

Intersection	
Intersection Delay, s/veh	128
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	223	179	2	23	190	138	3	200	29	168	265	87
Future Vol, veh/h	223	179	2	23	190	138	3	200	29	168	265	87
Peak Hour Factor	0.90	0.90	0.80	0.90	0.90	0.90	0.85	0.85	0.85	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	248	199	3	26	211	153	4	235	34	187	294	97
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay, s/veh	124.8	68	37	214
HCM LOS	F	F	E	F

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	1%	55%	0%	7%	32%
Vol Thru, %	86%	45%	0%	54%	51%
Vol Right, %	13%	0%	100%	39%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	232	402	2	351	520
LT Vol	3	223	0	23	168
Through Vol	200	179	0	190	265
RT Vol	29	0	2	138	87
Lane Flow Rate	273	447	3	390	578
Geometry Grp	2	5	5	4a	2
Degree of Util (X)	0.709	1.144	0.006	0.943	1.385
Departure Headway (Hd)	11.066	10.382	9.357	10.345	9.219
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	330	353	385	355	399
Service Time	9.066	8.082	7.057	8.345	7.219
HCM Lane V/C Ratio	0.827	1.266	0.008	1.099	1.449
HCM Control Delay, s/veh	37	125.4	12.1	68	214
HCM Lane LOS	E	F	B	F	F
HCM 95th-tile Q	5.1	15.7	0	9.9	26.5

4: 11 Mile Corner Rd & Houser Rd
2035 Total PM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	4.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	2	79	5	3	2	150	90	0	2	131	11
Future Vol, veh/h	8	2	79	5	3	2	150	90	0	2	131	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	80	80	80	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	2	93	6	4	3	176	106	0	2	154	13

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	626	624	161	619	631	106	167	0	0	106	0	0
Stage 1	165	165	-	459	459	-	-	-	-	-	-	-
Stage 2	461	459	-	160	172	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	397	402	884	401	398	948	1411	-	-	1485	-	-
Stage 1	837	761	-	582	567	-	-	-	-	-	-	-
Stage 2	581	567	-	842	757	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	339	348	884	309	345	948	1411	-	-	1485	-	-
Mov Cap-2 Maneuver	339	348	-	309	345	-	-	-	-	-	-	-
Stage 1	835	760	-	505	491	-	-	-	-	-	-	-
Stage 2	498	491	-	750	755	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	10.58		15.06		4.95		0.1	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1125	-	-	750	370	25	-	-
HCM Lane V/C Ratio	0.125	-	-	0.14	0.034	0.002	-	-
HCM Ctrl Dly (s/v)	7.9	0	-	10.6	15.1	7.4	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.5	0.1	0	-	-

5: Tumbleweed Rd & Houser Rd
2035 Total PM

HCM 7th TWSC

Intersection												
Int Delay, s/veh	7.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	48	15	30	131	5	41	69	34	8	64	3
Future Vol, veh/h	14	48	15	30	131	5	41	69	34	8	64	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	56	18	35	154	6	48	81	40	10	80	4

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	357	320	82	326	301	101	84	0
Stage 1	102	102	-	198	198	-	-	-
Stage 2	255	218	-	128	104	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-
Pot Cap-1 Maneuver	599	597	978	627	611	954	1513	-
Stage 1	904	811	-	804	737	-	-	-
Stage 2	750	723	-	876	809	-	-	-
Platoon blocked, %								-
Mov Cap-1 Maneuver	425	573	978	534	586	954	1513	-
Mov Cap-2 Maneuver	425	573	-	534	586	-	-	-
Stage 1	898	805	-	777	712	-	-	-
Stage 2	564	698	-	794	804	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.31	14.26	2.12	0.8
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	481	-	-	583	583	190	-
HCM Lane V/C Ratio	0.032	-	-	0.155	0.335	0.007	-
HCM Ctrl Dly (s/v)	7.5	0	-	12.3	14.3	7.5	0
HCM Lane LOS	A	A	-	B	B	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.5	1.5	0	-

6: Tumbleweed Rd & Driveway A
2035 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	6.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	217	68	77	188	32	76
Future Vol, veh/h	217	68	77	188	32	76
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	80	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	255	85	91	221	38	89
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	366	201	0	0	312	0
Stage 1	201	-	-	-	-	-
Stage 2	165	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	634	840	-	-	1249	-
Stage 1	833	-	-	-	-	-
Stage 2	865	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	614	840	-	-	1249	-
Mov Cap-2 Maneuver	614	-	-	-	-	-
Stage 1	833	-	-	-	-	-
Stage 2	837	-	-	-	-	-
Approach	WB	NB		SB		
HCM Ctrl Dly, s/v	13.68	0		2.36		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	614	840	533	-
HCM Lane V/C Ratio	-	-	0.416	0.101	0.03	-
HCM Ctrl Dly (s/v)	-	-	15	9.8	8	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	2	0.3	0.1	-

7: Frontier St & Driveway B
2035 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	5.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	34	773	846	79	42	74
Future Vol, veh/h	34	773	846	79	42	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	859	940	88	53	93
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1028	0	-	0	1918	984
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	934	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	676	-	-	-	74	301
Stage 1	-	-	-	-	362	-
Stage 2	-	-	-	-	382	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	676	-	-	-	66	301
Mov Cap-2 Maneuver	-	-	-	-	66	-
Stage 1	-	-	-	-	323	-
Stage 2	-	-	-	-	382	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.45	0		72.06		
HCM LOS				F		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	76	-	-	-	66	301
HCM Lane V/C Ratio	0.056	-	-	-	0.794	0.307
HCM Ctrl Dly (s/v)	10.6	0	-	-	160	22.1
HCM Lane LOS	B	A	-	-	F	C
HCM 95th %tile Q(veh)	0.2	-	-	-	3.7	1.3

8: Frontier St & Driveway C
2035 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	13					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	146	669	880	9	41	45
Future Vol, veh/h	146	669	880	9	41	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	162	743	978	10	51	56
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	988	0	-	0	2051	983
Stage 1	-	-	-	-	983	-
Stage 2	-	-	-	-	1068	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	700	-	-	-	61	302
Stage 1	-	-	-	-	363	-
Stage 2	-	-	-	-	330	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	700	-	-	-	~ 37	302
Mov Cap-2 Maneuver	-	-	-	-	~ 37	-
Stage 1	-	-	-	-	219	-
Stage 2	-	-	-	-	330	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	2.09	0		224.66		
HCM LOS				F		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	322	-	-	-	37	302
HCM Lane V/C Ratio	0.232	-	-	-	1.385	0.186
HCM Ctrl Dly (s/v)	11.7	0	-	-	\$ 449.7	19.6
HCM Lane LOS	B	A	-	-	F	C
HCM 95th %tile Q(veh)	0.9	-	-	-	5.4	0.7
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s				
+: Computation Not Defined		*: All major volume in platoon				

9: Frontier St & Driveway D
2035 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Vol, veh/h	0	711	519	4	0	371
Future Vol, veh/h	0	711	519	4	0	371
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	790	577	4	0	412
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	-	0	-	0	-	579
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	515
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	515
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		34.43		
HCM LOS	D					
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	515		
HCM Lane V/C Ratio	-	-	-	0.801		
HCM Ctrl Dly (s/v)	-	-	-	34.4		
HCM Lane LOS	-	-	-	D		
HCM 95th %tile Q(veh)	-	-	-	7.6		

10: 11 Mile Corner Rd & Driveway E
2035 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	6.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	222	304	257	297	11
Future Vol, veh/h	23	222	304	257	297	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	85	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	261	338	286	330	12

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1297	336	342	0	-	0
Stage 1	336	-	-	-	-	-
Stage 2	961	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	179	706	1217	-	-	-
Stage 1	724	-	-	-	-	-
Stage 2	371	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	120	706	1217	-	-	-
Mov Cap-2 Maneuver	120	-	-	-	-	-
Stage 1	485	-	-	-	-	-
Stage 2	371	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	16.17	4.93	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	975	-	120	706	-	-
HCM Lane V/C Ratio	0.278	-	0.24	0.37	-	-
HCM Ctrl Dly (s/v)	9.1	0	44.3	13.1	-	-
HCM Lane LOS	A	A	E	B	-	-
HCM 95th %tile Q(veh)	1.1	-	0.9	1.7	-	-

11: 11 Mile Corner Rd & Driveway F
2035 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	48	83	197	260	9
Future Vol, veh/h	5	48	83	197	260	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	60	98	232	306	11

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	738	311	316	0	-	0
Stage 1	311	-	-	-	-	-
Stage 2	427	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	385	729	1244	-	-	-
Stage 1	743	-	-	-	-	-
Stage 2	658	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	350	729	1244	-	-	-
Mov Cap-2 Maneuver	350	-	-	-	-	-
Stage 1	676	-	-	-	-	-
Stage 2	658	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.86	2.41	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	534	-	350	729	-	-
HCM Lane V/C Ratio	0.079	-	0.018	0.082	-	-
HCM Ctrl Dly (s/v)	8.1	0	15.5	10.4	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.1	0.3	-	-

12: 11 Mile Corner Rd & Driveway G
2035 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	24	61	141	245	7
Future Vol, veh/h	20	24	61	141	245	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	30	72	166	288	8
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	602	292	296	0	-	0
Stage 1	292	-	-	-	-	-
Stage 2	309	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	463	747	1265	-	-	-
Stage 1	758	-	-	-	-	-
Stage 2	744	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	434	747	1265	-	-	-
Mov Cap-2 Maneuver	434	-	-	-	-	-
Stage 1	710	-	-	-	-	-
Stage 2	744	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	11.74	2.42		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	544	-	434	747	-	-
HCM Lane V/C Ratio	0.057	-	0.058	0.04	-	-
HCM Ctrl Dly (s/v)	8	0	13.8	10	-	-
HCM Lane LOS	A	A	B	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.2	0.1	-	-

13: 11 Mile Corner Rd & Driveway H
2035 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	4.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	104	63	30	131	189	22
Future Vol, veh/h	104	63	30	131	189	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	80	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	122	79	35	154	222	26

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	460	235	248	0	-	0
Stage 1	235	-	-	-	-	-
Stage 2	225	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	559	804	1317	-	-	-
Stage 1	804	-	-	-	-	-
Stage 2	813	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	543	804	1317	-	-	-
Mov Cap-2 Maneuver	543	-	-	-	-	-
Stage 1	780	-	-	-	-	-
Stage 2	813	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.14	1.45	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	335	-	543	804	-	-
HCM Lane V/C Ratio	0.027	-	0.225	0.098	-	-
HCM Ctrl Dly (s/v)	7.8	0	13.5	10	-	-
HCM Lane LOS	A	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.9	0.3	-	-

14: 11 Mile Corner Rd & Driveway I
2035 Total PM

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑	↘	
Traffic Vol, veh/h	0	16	0	235	195	27
Future Vol, veh/h	0	16	0	235	195	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	80	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	20	0	276	229	32
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	245	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	793	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	793	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	9.65	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT EBLn1		SBT	SBR		
Capacity (veh/h)	- 793		-	-		
HCM Lane V/C Ratio	- 0.025		-	-		
HCM Ctrl Dly (s/v)	- 9.7		-	-		
HCM Lane LOS	- A		-	-		
HCM 95th %tile Q(veh)	- 0.1		-	-		

APPENDIX I: 2035 MITIGATION LEVEL OF SERVICE

1: Frontier St & Tumbleweed Rd
2035 Total AM - Mitigation

Timings

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	117	542	519	35	57	71
Future Volume (vph)	117	542	519	35	57	71
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	12.2	65.2	53.0	53.0	24.8	24.8
Total Split (%)	13.6%	72.4%	58.9%	58.9%	27.6%	27.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effect Green (s)	48.0	48.0	35.9	35.9	33.0	33.0
Actuated g/C Ratio	0.53	0.53	0.40	0.40	0.37	0.37
v/c Ratio	0.48	0.61	0.78	0.06	0.10	0.13
Control Delay (s/veh)	14.9	16.5	30.4	6.3	23.1	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.9	16.5	30.4	6.3	23.1	6.6
LOS	B	B	C	A	C	A
Approach Delay (s/veh)		16.2	28.9		13.9	
Approach LOS		B	C		B	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay (s/veh): 21.2

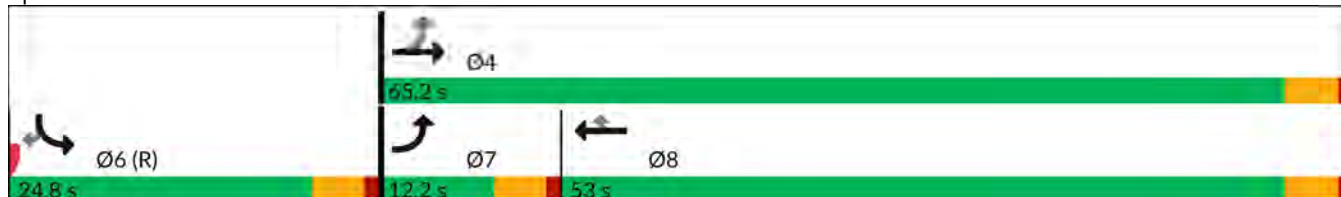
Intersection LOS: C

Intersection Capacity Utilization 49.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Frontier St & Tumbleweed Rd



1: Frontier St & Tumbleweed Rd
2035 Total AM - Mitigation

HCM 7th Signalized Intersection Summary

							
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	117	542	519	35	57	71	
Future Volume (veh/h)	117	542	519	35	57	71	
Initial Q (Qb), veh	0	0	0	0	0	0	
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	138	602	577	39	67	84	
Peak Hour Factor	0.85	0.90	0.90	0.90	0.85	0.85	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	253	882	663	562	763	679	
Arrive On Green	0.07	0.47	0.35	0.35	0.43	0.43	
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585	
Grp Volume(v), veh/h	138	602	577	39	67	84	
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1781	1585	
Q Serve(g_s), s	4.2	22.6	25.9	1.5	2.0	2.9	
Cycle Q Clear(g_c), s	4.2	22.6	25.9	1.5	2.0	2.9	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	253	882	663	562	763	679	
V/C Ratio(X)	0.54	0.68	0.87	0.07	0.09	0.12	
Avail Cap(c_a), veh/h	286	1261	1008	854	763	679	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	20.3	18.5	27.1	19.2	15.3	15.5	
Incr Delay (d2), s/veh	1.8	0.9	5.5	0.1	0.2	0.4	
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.8	9.4	12.1	0.5	0.8	3.4	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	22.1	19.5	32.6	19.3	15.5	15.9	
LnGrp LOS	C	B	C	B	B	B	
Approach Vol, veh/h		740	616		151		
Approach Delay, s/veh		20.0	31.8		15.7		
Approach LOS		B	C		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				46.9	43.1	10.6	36.4
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				60.7	20.3	7.7	48.5
Max Q Clear Time (g_c+l1), s				24.6	4.9	6.2	27.9
Green Ext Time (p_c), s				4.6	0.4	0.0	4.0
Intersection Summary							
HCM 7th Control Delay, s/veh			24.4				
HCM 7th LOS			C				

2: Battaglia Rd & Frontier St
2035 Total AM - Mitigation

Timings

	→	←	↖	↗	↑	↘	↓
Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	137	58	201	86	322	146	235
Future Volume (vph)	137	58	201	86	322	146	235
Turn Type	NA	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	4	8		5	2	1	6
Permitted Phases			8	2		6	
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	26.0	24.0	24.0	10.0	24.0	16.0	30.0
Total Split (%)	28.9%	26.7%	26.7%	11.1%	26.7%	17.8%	33.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	18.6	9.2	9.2	42.0	33.9	47.1	38.2
Actuated g/C Ratio	0.21	0.10	0.10	0.47	0.38	0.52	0.42
v/c Ratio	0.82	0.36	0.63	0.19	0.51	0.36	0.36
Control Delay (s/veh)	46.7	37.8	19.8	13.2	28.3	14.5	22.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	46.7	37.8	19.8	13.2	28.3	14.5	22.6
LOS	D	D	B	B	C	B	C
Approach Delay (s/veh)	46.7	23.8			25.0		19.6
Approach LOS	D	C			C		B

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay (s/veh): 27.7

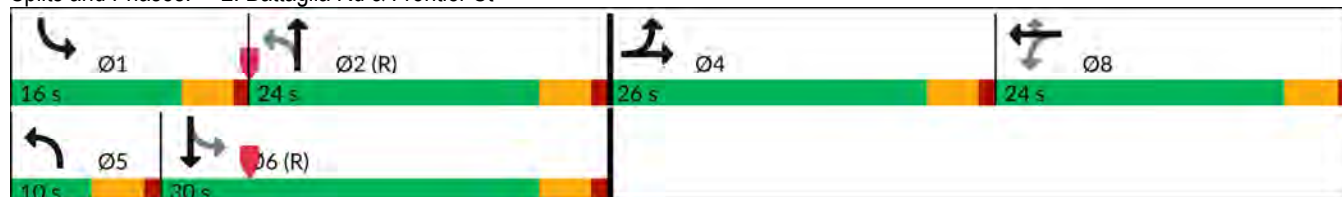
Intersection LOS: C

Intersection Capacity Utilization 58.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: Battaglia Rd & Frontier St



2: Battaglia Rd & Frontier St
2035 Total AM - Mitigation

HCM 7th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	137	129	0	58	201	86	322	0	146	235	8
Future Volume (veh/h)	12	137	129	0	58	201	86	322	0	146	235	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	14	161	152	0	68	236	101	358	0	172	276	9
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.90	0.90	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	16	180	170	0	322	273	445	617	0	407	649	21
Arrive On Green	0.21	0.21	0.21	0.00	0.17	0.17	0.05	0.33	0.00	0.09	0.36	0.36
Sat Flow, veh/h	74	848	801	0	1870	1585	1781	1870	0	1781	1801	59
Grp Volume(v), veh/h	327	0	0	0	68	236	101	358	0	172	0	285
Grp Sat Flow(s),veh/h/ln	1723	0	0	0	1870	1585	1781	1870	0	1781	0	1860
Q Serve(g_s), s	16.6	0.0	0.0	0.0	2.8	13.0	3.3	14.3	0.0	5.6	0.0	10.4
Cycle Q Clear(g_c), s	16.6	0.0	0.0	0.0	2.8	13.0	3.3	14.3	0.0	5.6	0.0	10.4
Prop In Lane	0.04		0.46	0.00		1.00	1.00		0.00	1.00		0.03
Lane Grp Cap(c), veh/h	366	0	0	0	322	273	445	617	0	407	0	670
V/C Ratio(X)	0.89	0.00	0.00	0.00	0.21	0.86	0.23	0.58	0.00	0.42	0.00	0.43
Avail Cap(c_a), veh/h	411	0	0	0	405	343	457	617	0	483	0	670
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.71	0.71	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.4	0.0	0.0	0.0	32.0	36.2	18.4	25.0	0.0	18.3	0.0	21.7
Incr Delay (d2), s/veh	19.7	0.0	0.0	0.0	0.2	12.6	0.3	3.9	0.0	0.7	0.0	2.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	0.0	0.0	0.0	1.3	5.9	1.4	6.8	0.0	2.3	0.0	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	54.1	0.0	0.0	0.0	32.2	48.8	18.7	28.9	0.0	19.0	0.0	23.7
LnGrp LOS	D				C	D	B	C		B		C
Approach Vol, veh/h		327			304			459			457	
Approach Delay, s/veh		54.1			45.1			26.7			21.9	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.2	34.2		23.6	9.4	36.9		20.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	11.5	19.5		21.5	5.5	25.5		19.5				
Max Q Clear Time (g_c+I1), s	7.6	16.3		18.6	5.3	12.4		15.0				
Green Ext Time (p_c), s	0.2	0.6		0.5	0.0	1.3		0.5				
Intersection Summary												
HCM 7th Control Delay, s/veh			34.7									
HCM 7th LOS			C									

3: Battaglia Rd & 11 Mile Corner Rd

2035 Total AM - Mitigation

Timings

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	119	169	2	20	172	181	123	138	85
Future Volume (vph)	119	169	2	20	172	181	123	138	85
Turn Type	pm+pt	NA	Perm	Perm	NA	NA	Perm	NA	Perm
Protected Phases	7	4			8	2		6	
Permitted Phases	4		4	8			6		6
Detector Phase	7	4	4	8	8	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	14.0	42.0	42.0	28.0	28.0	23.0	25.0	25.0	25.0
Total Split (%)	15.6%	46.7%	46.7%	31.1%	31.1%	25.6%	27.8%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead			Lag		Lag			
Lead-Lag Optimize?	Yes			Yes		Yes			
Recall Mode	None	None	None	None	None	C-Max	Max	Max	Max
Act Effct Green (s)	32.5	32.5	32.5	18.9	18.9	23.5	20.5	20.5	20.5
Actuated g/C Ratio	0.36	0.36	0.36	0.21	0.21	0.26	0.23	0.23	0.23
v/c Ratio	0.50	0.30	0.00	0.09	0.78	0.53	0.54	0.36	0.21
Control Delay (s/veh)	20.7	15.8	0.0	27.3	43.9	33.8	39.5	32.2	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	20.7	15.8	0.0	27.3	43.9	33.8	39.5	32.2	3.7
LOS	C	B	A	C	D	C	D	C	A
Approach Delay (s/veh)		17.6			42.8	33.8		27.8	
Approach LOS		B			D	C		C	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay (s/veh): 30.1

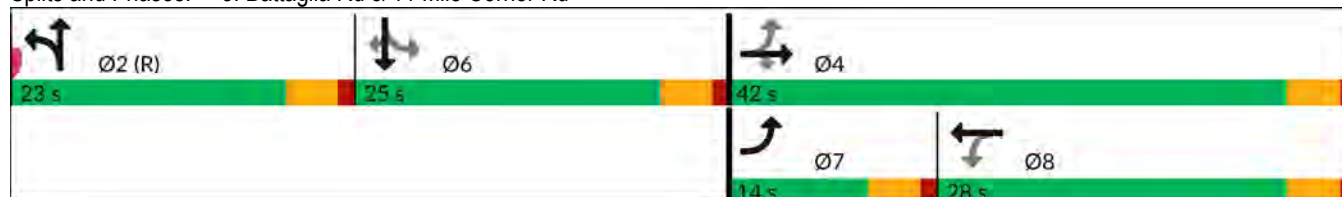
Intersection LOS: C

Intersection Capacity Utilization 56.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: Battaglia Rd & 11 Mile Corner Rd



3: Battaglia Rd & 11 Mile Corner Rd
2035 Total AM - Mitigation

HCM 7th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	169	2	20	172	107	3	181	32	123	138	85
Future Volume (veh/h)	119	169	2	20	172	107	3	181	32	123	138	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	140	199	2	22	191	119	4	213	38	137	153	94
Peak Hour Factor	0.85	0.85	0.80	0.90	0.90	0.90	0.85	0.85	0.85	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	257	625	530	322	220	137	8	438	78	406	426	361
Arrive On Green	0.03	0.11	0.11	0.20	0.20	0.20	0.29	0.29	0.29	0.23	0.23	0.23
Sat Flow, veh/h	1781	1870	1585	1181	1078	672	29	1520	271	1781	1870	1585
Grp Volume(v), veh/h	140	199	2	22	0	310	255	0	0	137	153	94
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1181	0	1749	1820	0	0	1781	1870	1585
Q Serve(g_s), s	5.3	8.8	0.1	1.4	0.0	15.4	10.4	0.0	0.0	5.8	6.2	4.4
Cycle Q Clear(g_c), s	5.3	8.8	0.1	1.4	0.0	15.4	10.4	0.0	0.0	5.8	6.2	4.4
Prop In Lane	1.00		1.00	1.00		0.38	0.02		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	257	625	530	322	0	358	524	0	0	406	426	361
V/C Ratio(X)	0.54	0.32	0.00	0.07	0.00	0.87	0.49	0.00	0.00	0.34	0.36	0.26
Avail Cap(c_a), veh/h	303	779	660	388	0	457	524	0	0	406	426	361
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.70	0.70	0.70	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.9	30.6	26.7	29.0	0.0	34.6	26.5	0.0	0.0	29.1	29.2	28.5
Incr Delay (d2), s/veh	1.3	0.2	0.0	0.1	0.0	13.3	3.2	0.0	0.0	2.2	2.3	1.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	4.3	0.0	0.4	0.0	7.7	4.9	0.0	0.0	2.7	3.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	28.2	30.8	26.7	29.1	0.0	47.9	29.7	0.0	0.0	31.3	31.6	30.3
LnGrp LOS	C	C	C	C		D	C			C	C	C
Approach Vol, veh/h	341			332			255			384		
Approach Delay, s/veh	29.7			46.7			29.7			31.2		
Approach LOS	C			D			C			C		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	30.4			34.6			25.0			11.7		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.5			37.5			20.5			9.5		
Max Q Clear Time (g_c+l1), s	12.4			10.8			8.2			7.3		
Green Ext Time (p_c), s	0.7			1.1			1.3			0.1		
Intersection Summary												
HCM 7th Control Delay, s/veh	34.4											
HCM 7th LOS	C											

4: 11 Mile Corner Rd & Houser Rd
2035 Total AM - Mitigation

HCM 7th TWSC

Intersection												
Int Delay, s/veh	5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	0	159	0	5	3	91	128	0	2	122	14
Future Vol, veh/h	15	0	159	0	5	3	91	128	0	2	122	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	80	80	80	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	187	0	6	4	107	151	0	2	144	16

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	524	521	152	513	529	151	160	0	0	151	0	0
Stage 1	156	156	-	365	365	-	-	-	-	-	-	-
Stage 2	368	365	-	148	165	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	464	460	894	472	455	896	1419	-	-	1430	-	-
Stage 1	846	768	-	654	623	-	-	-	-	-	-	-
Stage 2	652	623	-	854	762	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	417	421	894	342	417	896	1419	-	-	1430	-	-
Mov Cap-2 Maneuver	417	421	-	342	417	-	-	-	-	-	-	-
Stage 1	844	767	-	601	572	-	-	-	-	-	-	-
Stage 2	589	572	-	674	761	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.9	12.04	3.22	0.11
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	748	-	-	814	521	26	-
HCM Lane V/C Ratio	0.075	-	-	0.251	0.019	0.002	-
HCM Ctrl Dly (s/v)	7.7	0	-	10.9	12	7.5	0
HCM Lane LOS	A	A	-	B	B	A	A
HCM 95th %tile Q(veh)	0.2	-	-	1	0.1	0	-

5: Tumbleweed Rd & Houser Rd
2035 Total AM - Mitigation

HCM 7th TWSC

Intersection												
Int Delay, s/veh	9.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	155	46	42	66	0	13	20	10	3	53	6
Future Vol, veh/h	6	155	46	42	66	0	13	20	10	3	53	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	182	54	49	78	0	16	25	13	4	66	8
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	174	148	70	229	145	31	74	0	0	38	0	0
Stage 1	78	78	-	64	64	-	-	-	-	-	-	-
Stage 2	96	70	-	165	81	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	789	744	993	726	746	1043	1526	-	-	1573	-	-
Stage 1	931	830	-	947	842	-	-	-	-	-	-	-
Stage 2	910	837	-	837	827	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	697	734	993	511	736	1043	1526	-	-	1573	-	-
Mov Cap-2 Maneuver	697	734	-	511	736	-	-	-	-	-	-	-
Stage 1	929	828	-	937	833	-	-	-	-	-	-	-
Stage 2	816	828	-	616	825	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	11.72		12.17		2.23		0.35					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	510	-	-	778	629	85	-	-				
HCM Lane V/C Ratio	0.011	-	-	0.313	0.202	0.002	-	-				
HCM Ctrl Dly (s/v)	7.4	0	-	11.7	12.2	7.3	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	1.3	0.8	0	-	-				

6: Tumbleweed Rd & Driveway A
2035 Total AM - Mitigation

HCM 7th TWSC

Intersection						
Int Delay, s/veh	3.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	50	18	26	126	62	77
Future Vol, veh/h	50	18	26	126	62	77
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	63	23	31	148	73	91
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	267	31	0	0	179	0
Stage 1	31	-	-	-	-	-
Stage 2	236	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	722	1044	-	-	1397	-
Stage 1	992	-	-	-	-	-
Stage 2	803	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	684	1044	-	-	1397	-
Mov Cap-2 Maneuver	684	-	-	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	761	-	-	-	-	-
Approach	WB	NB	SB			
HCM Ctrl Dly, s/v	10.19	0	3.44			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 684 1044	1397	-		
HCM Lane V/C Ratio	-	- 0.091 0.022	0.052	-		
HCM Ctrl Dly (s/v)	-	- 10.8 8.5	7.7	-		
HCM Lane LOS	-	- B A	A	-		
HCM 95th %tile Q(veh)	-	- 0.3 0.1	0.2	-		

7: Frontier St & Driveway B
2035 Total AM - Mitigation

HCM 7th TWSC

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	24	573	541	43	10	18
Future Vol, veh/h	24	573	541	43	10	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	637	601	48	13	23

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	649	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	-
Pot Cap-1 Maneuver	933	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	933	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.36	0	12.4
HCM LOS	B		

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	933	-	-	-	337	696
HCM Lane V/C Ratio	0.029	-	-	-	0.037	0.032
HCM Ctrl Dly (s/v)	9	-	-	-	16.1	10.3
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	0.1

Notes	
~: Volume exceeds capacity	\$. Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

8: Frontier St & Driveway C
2035 Total AM - Mitigation

HCM 7th TWSC

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	206	377	574	33	11	11
Future Vol, veh/h	206	377	574	33	11	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	0
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	229	419	638	37	14	14
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	674	0	-	0	1305	319
Stage 1	-	-	-	-	638	-
Stage 2	-	-	-	-	667	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	913	-	-	-	179	677
Stage 1	-	-	-	-	488	-
Stage 2	-	-	-	-	568	-
Platoon blocked, %		-	-	-	0	
Mov Cap-1 Maneuver	913	-	-	-	134	677
Mov Cap-2 Maneuver	-	-	-	-	260	-
Stage 1	-	-	-	-	366	-
Stage 2	-	-	-	-	568	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	3.63	0		15.01		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	913	-	-	-	260	677
HCM Lane V/C Ratio	0.251	-	-	-	0.053	0.02
HCM Ctrl Dly (s/v)	10.3	-	-	-	19.6	10.4
HCM Lane LOS	B	-	-	-	C	B
HCM 95th %tile Q(veh)	1	-	-	-	0.2	0.1

9: Frontier St & Driveway D
2035 Total AM - Mitigation

HCM 7th TWSC

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	388	505	31	0	102
Future Vol, veh/h	0	388	505	31	0	102
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	100	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	431	561	34	0	120
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	-	0	-	0	-	281
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	717
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	717
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		11.03		
HCM LOS				B		
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	717		
HCM Lane V/C Ratio	-	-	-	0.167		
HCM Ctrl Dly (s/v)	-	-	-	11		
HCM Lane LOS	-	-	-	B		
HCM 95th %tile Q(veh)	-	-	-	0.6		

10: 11 Mile Corner Rd & Driveway E
2035 Total AM - Mitigation

HCM 7th TWSC

Intersection							
Int Delay, s/veh	3.4						
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Vol, veh/h	14	72	185	221	271	24	
Future Vol, veh/h	14	72	185	221	271	24	
Conflicting Peds, #/hr	0	0	0	0	0	0	
Sign Control	Stop	Stop	Free	Free	Free	Free	
RT Channelized	-	None	-	None	-	None	
Storage Length	0	0	100	-	-	100	
Veh in Median Storage, #	0	-	-	0	0	-	
Grade, %	0	-	-	0	0	-	
Peak Hour Factor	80	80	90	90	85	85	
Heavy Vehicles, %	2	2	2	2	2	2	
Mvmt Flow	18	90	206	246	319	28	
Major/Minor	Minor2		Major1		Major2		
Conflicting Flow All	975	319	347	0	-	0	
Stage 1	319	-	-	-	-	-	
Stage 2	657	-	-	-	-	-	
Critical Hdwy	6.42	6.22	4.12	-	-	-	
Critical Hdwy Stg 1	5.42	-	-	-	-	-	
Critical Hdwy Stg 2	5.42	-	-	-	-	-	
Follow-up Hdwy	3.518	3.318	2.218	-	-	-	
Pot Cap-1 Maneuver	279	722	1212	-	-	-	
Stage 1	737	-	-	-	-	-	
Stage 2	516	-	-	-	-	-	
Platoon blocked, %				-	-	-	
Mov Cap-1 Maneuver	231	722	1212	-	-	-	
Mov Cap-2 Maneuver	231	-	-	-	-	-	
Stage 1	612	-	-	-	-	-	
Stage 2	516	-	-	-	-	-	
Approach	EB		NB		SB		
HCM Ctrl Dly, s/v	12.51		3.91		0		
HCM LOS	B						
Minor Lane/Major Mvmt	NBL		NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1212		-	231	722	-	-
HCM Lane V/C Ratio	0.17		-	0.076	0.125	-	-
HCM Ctrl Dly (s/v)	8.6		-	21.8	10.7	-	-
HCM Lane LOS	A		-	C	B	-	-
HCM 95th %tile Q(veh)	0.6		-	0.2	0.4	-	-

11: 11 Mile Corner Rd & Driveway F
2035 Total AM - Mitigation

HCM 7th TWSC

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	78	24	211	217	3
Future Vol, veh/h	9	78	24	211	217	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	92	28	248	255	4
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	560	255	259	0	-	0
Stage 1	255	-	-	-	-	-
Stage 2	305	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	489	783	1306	-	-	-
Stage 1	787	-	-	-	-	-
Stage 2	748	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	479	783	1306	-	-	-
Mov Cap-2 Maneuver	479	-	-	-	-	-
Stage 1	770	-	-	-	-	-
Stage 2	748	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	10.48	0.8		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1306	-	479	783	-	-
HCM Lane V/C Ratio	0.022	-	0.023	0.117	-	-
HCM Ctrl Dly (s/v)	7.8	-	12.7	10.2	-	-
HCM Lane LOS	A	-	B	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	0.4	-	-

1: Frontier St & Tumbleweed Rd
2035 Total PM - Mitigation

Timings

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	177	652	825	89	144	150
Future Volume (vph)	177	652	825	89	144	150
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	12.2	65.2	53.0	53.0	24.8	24.8
Total Split (%)	13.6%	72.4%	58.9%	58.9%	27.6%	27.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	None	None	None	C-Max	C-Max
Act Effct Green (s)	59.6	59.6	47.4	47.4	21.4	21.4
Actuated g/C Ratio	0.66	0.66	0.53	0.53	0.24	0.24
v/c Ratio	0.89	0.59	0.93	0.12	0.40	0.35
Control Delay (s/veh)	56.9	10.6	37.7	6.2	33.0	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	56.9	10.6	37.7	6.2	33.0	6.8
LOS	E	B	D	A	C	A
Approach Delay (s/veh)		20.9	34.7		19.6	
Approach LOS		C	C		B	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay (s/veh): 26.8

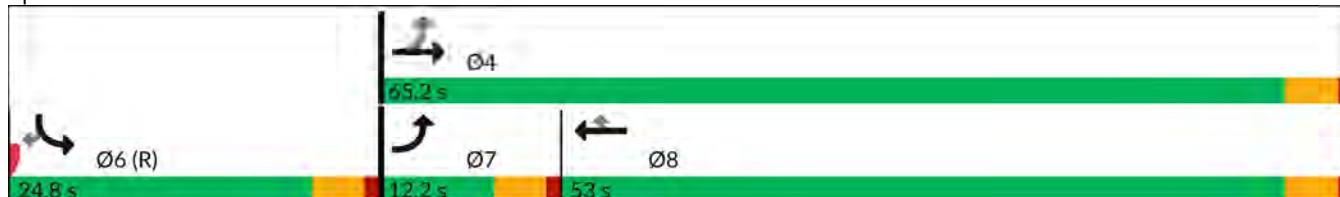
Intersection LOS: C

Intersection Capacity Utilization 72.5%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Frontier St & Tumbleweed Rd



1: Frontier St & Tumbleweed Rd
2035 Total PM - Mitigation

HCM 7th Signalized Intersection Summary

							
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	177	652	825	89	144	150	
Future Volume (veh/h)	177	652	825	89	144	150	
Initial Q (Qb), veh	0	0	0	0	0	0	
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	208	724	917	99	169	176	
Peak Hour Factor	0.85	0.90	0.90	0.90	0.85	0.85	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	243	1202	968	821	458	408	
Arrive On Green	0.07	0.64	0.52	0.52	0.26	0.26	
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585	
Grp Volume(v), veh/h	208	724	917	99	169	176	
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1781	1585	
Q Serve(g_s), s	4.7	20.3	41.8	2.9	7.0	8.3	
Cycle Q Clear(g_c), s	4.7	20.3	41.8	2.9	7.0	8.3	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	243	1202	968	821	458	408	
V/C Ratio(X)	0.85	0.60	0.95	0.12	0.37	0.43	
Avail Cap(c_a), veh/h	262	1261	1008	854	458	408	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	20.8	9.4	20.5	11.2	27.4	27.9	
Incr Delay (d2), s/veh	22.0	0.7	16.8	0.1	2.3	3.3	
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	3.7	7.4	21.0	1.0	3.2	8.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	42.8	10.1	37.3	11.2	29.7	31.2	
LnGrp LOS	D	B	D	B	C	C	
Approach Vol, veh/h		932	1016		345		
Approach Delay, s/veh		17.4	34.8		30.5		
Approach LOS		B	C		C		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				62.3	27.7	11.2	51.1
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				60.7	20.3	7.7	48.5
Max Q Clear Time (g_c+I1), s				22.3	10.3	6.7	43.8
Green Ext Time (p_c), s				6.1	0.8	0.1	2.8
Intersection Summary							
HCM 7th Control Delay, s/veh			27.1				
HCM 7th LOS			C				

2: Battaglia Rd & Frontier St
2035 Total PM - Mitigation

Timings

	→	←	↖	↗	↑	↘	↓
Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	74	125	151	105	347	329	377
Future Volume (vph)	74	125	151	105	347	329	377
Turn Type	NA	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	4	8		5	2	1	6
Permitted Phases			8	2		6	
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	25.0	24.0	24.0	10.0	24.0	17.0	31.0
Total Split (%)	27.8%	26.7%	26.7%	11.1%	26.7%	18.9%	34.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	15.9	12.5	12.5	30.0	22.1	48.1	35.7
Actuated g/C Ratio	0.18	0.14	0.14	0.33	0.25	0.53	0.40
v/c Ratio	0.77	0.57	0.47	0.32	0.84	0.72	0.58
Control Delay (s/veh)	40.6	37.7	14.6	16.8	52.5	28.6	27.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	40.6	37.7	14.6	16.8	52.5	28.6	27.9
LOS	D	D	B	B	D	C	C
Approach Delay (s/veh)	40.6	25.0			43.8		28.2
Approach LOS	D	C			D		C

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay (s/veh): 33.6

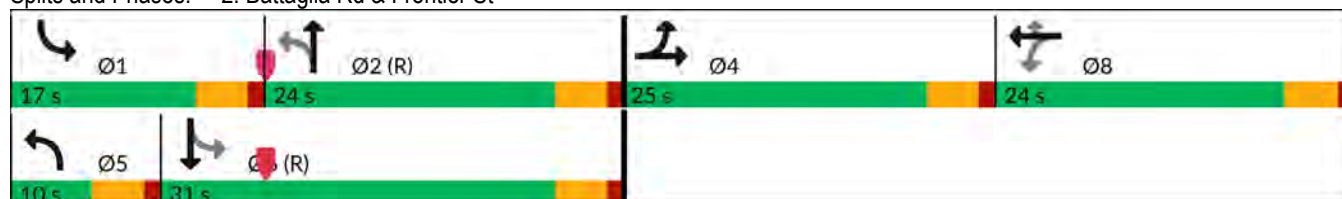
Intersection LOS: C

Intersection Capacity Utilization 71.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Battaglia Rd & Frontier St



2: Battaglia Rd & Frontier St
2035 Total PM - Mitigation

HCM 7th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	74	134	0	125	151	105	347	0	329	377	5
Future Volume (veh/h)	26	74	134	0	125	151	105	347	0	329	377	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	31	87	158	0	147	178	124	386	0	366	419	6
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	36	100	181	0	267	226	414	619	0	484	752	11
Arrive On Green	0.19	0.19	0.19	0.00	0.05	0.05	0.06	0.33	0.00	0.14	0.41	0.41
Sat Flow, veh/h	189	532	966	0	1870	1585	1781	1870	0	1781	1839	26
Grp Volume(v), veh/h	276	0	0	0	147	178	124	386	0	366	0	425
Grp Sat Flow(s),veh/h/ln	1687	0	0	0	1870	1585	1781	1870	0	1781	0	1866
Q Serve(g_s), s	14.3	0.0	0.0	0.0	6.9	10.0	4.1	15.7	0.0	11.8	0.0	15.7
Cycle Q Clear(g_c), s	14.3	0.0	0.0	0.0	6.9	10.0	4.1	15.7	0.0	11.8	0.0	15.7
Prop In Lane	0.11		0.57	0.00		1.00	1.00		0.00	1.00		0.01
Lane Grp Cap(c), veh/h	317	0	0	0	267	226	414	619	0	484	0	762
V/C Ratio(X)	0.87	0.00	0.00	0.00	0.55	0.79	0.30	0.62	0.00	0.76	0.00	0.56
Avail Cap(c_a), veh/h	384	0	0	0	405	343	414	619	0	484	0	762
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.64	0.64	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.5	0.0	0.0	0.0	40.1	41.5	18.4	25.4	0.0	17.4	0.0	20.4
Incr Delay (d2), s/veh	16.7	0.0	0.0	0.0	1.1	4.4	0.4	4.7	0.0	6.7	0.0	2.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	0.0	0.0	0.0	3.4	4.5	1.7	7.5	0.0	5.4	0.0	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	52.2	0.0	0.0	0.0	41.2	46.0	18.8	30.1	0.0	24.1	0.0	23.3
LnGrp LOS	D				D	D	B	C		C		C
Approach Vol, veh/h		276			325			510			791	
Approach Delay, s/veh		52.2			43.8			27.3			23.7	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.0	34.3		21.4	10.0	41.3		17.3				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	12.5	19.5		20.5	5.5	26.5		19.5				
Max Q Clear Time (g_c+l1), s	13.8	17.7		16.3	6.1	17.7		12.0				
Green Ext Time (p_c), s	0.0	0.4		0.6	0.0	1.7		0.8				
Intersection Summary												
HCM 7th Control Delay, s/veh			32.2									
HCM 7th LOS			C									

3: Battaglia Rd & 11 Mile Corner Rd

2035 Total PM - Mitigation

Timings

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	223	179	2	23	190	201	168	265	87
Future Volume (vph)	223	179	2	23	190	201	168	265	87
Turn Type	pm+pt	NA	Perm	Perm	NA	NA	Perm	NA	Perm
Protected Phases	7	4			8	2		6	
Permitted Phases	4		4	8			6		6
Detector Phase	7	4	4	8	8	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	14.0	42.0	42.0	28.0	28.0	23.0	25.0	25.0	25.0
Total Split (%)	15.6%	46.7%	46.7%	31.1%	31.1%	25.6%	27.8%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead			Lag			Lag		
Lead-Lag Optimize?	Yes			Yes			Yes		
Recall Mode	None	None	None	None	None	C-Max	Max	Max	Max
Act Effct Green (s)	34.7	34.7	34.7	20.7	20.7	21.3	20.5	20.5	20.5
Actuated g/C Ratio	0.39	0.39	0.39	0.23	0.23	0.24	0.23	0.23	0.23
v/c Ratio	0.96	0.29	0.00	0.10	0.84	0.63	0.79	0.74	0.22
Control Delay (s/veh)	63.8	20.2	0.0	26.7	47.6	38.7	57.0	44.1	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	63.8	20.2	0.0	26.7	47.6	38.7	57.0	44.1	4.7
LOS	E	C	A	C	D	D	E	D	A
Approach Delay (s/veh)	44.0			46.2			41.7		
Approach LOS	D			D			D		

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay (s/veh): 42.9

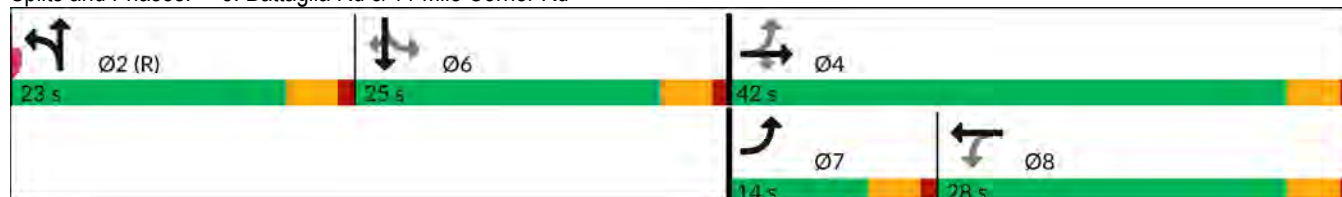
Intersection LOS: D

Intersection Capacity Utilization 72.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: Battaglia Rd & 11 Mile Corner Rd



3: Battaglia Rd & 11 Mile Corner Rd
2035 Total PM - Mitigation

HCM 7th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	179	2	23	190	138	3	201	29	168	265	87
Future Volume (veh/h)	223	179	2	23	190	138	3	201	29	168	265	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	262	211	2	26	211	153	4	236	34	198	312	102
Peak Hour Factor	0.85	0.85	0.80	0.90	0.90	0.90	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	299	727	616	353	235	171	6	367	53	406	426	361
Arrive On Green	0.03	0.13	0.13	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1781	1870	1585	1168	1008	731	27	1575	227	1781	1870	1585
Grp Volume(v), veh/h	262	211	2	26	0	364	274	0	0	198	312	102
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1168	0	1739	1828	0	0	1781	1870	1585
Q Serve(g_s), s	9.5	9.2	0.1	1.6	0.0	18.3	12.2	0.0	0.0	8.7	13.9	4.8
Cycle Q Clear(g_c), s	9.5	9.2	0.1	1.6	0.0	18.3	12.2	0.0	0.0	8.7	13.9	4.8
Prop In Lane	1.00		1.00	1.00		0.42	0.01		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	299	727	616	353	0	406	427	0	0	406	426	361
V/C Ratio(X)	0.88	0.29	0.00	0.07	0.00	0.90	0.64	0.00	0.00	0.49	0.73	0.28
Avail Cap(c_a), veh/h	299	779	660	385	0	454	427	0	0	406	426	361
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.59	0.59	0.59	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.3	28.0	24.0	27.1	0.0	33.5	31.1	0.0	0.0	30.2	32.2	28.7
Incr Delay (d2), s/veh	15.8	0.1	0.0	0.1	0.0	18.9	7.2	0.0	0.0	4.2	10.6	2.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	4.5	0.0	0.4	0.0	9.6	6.1	0.0	0.0	4.1	7.4	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	42.1	28.1	24.0	27.1	0.0	52.4	38.4	0.0	0.0	34.3	42.8	30.6
LnGrp LOS	D	C	C	C		D	D			C	D	C
Approach Vol, veh/h	475			390			274			612		
Approach Delay, s/veh	35.8			50.7			38.4			38.1		
Approach LOS	D			D			D			D		
Timer - Assigned Phs	2			4			6			7		
Phs Duration (G+Y+Rc), s	25.5			39.5			25.0			14.0		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.5			37.5			20.5			9.5		
Max Q Clear Time (g_c+l1), s	14.2			11.2			15.9			11.5		
Green Ext Time (p_c), s	0.6			1.2			1.3			0.0		
Intersection Summary												
HCM 7th Control Delay, s/veh	40.3											
HCM 7th LOS	D											

4: 11 Mile Corner Rd & Houser Rd
2035 Total PM - Mitigation

HCM 7th TWSC

Intersection												
Int Delay, s/veh	4.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	2	79	5	3	2	150	90	0	2	131	11
Future Vol, veh/h	8	2	79	5	3	2	150	90	0	2	131	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	80	80	80	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	2	93	6	4	3	176	106	0	2	154	13

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	626	624	161	619	631	106	167	0	0	106	0	0
Stage 1	165	165	-	459	459	-	-	-	-	-	-	-
Stage 2	461	459	-	160	172	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	397	402	884	401	398	948	1411	-	-	1485	-	-
Stage 1	837	761	-	582	567	-	-	-	-	-	-	-
Stage 2	581	567	-	842	757	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	339	348	884	309	345	948	1411	-	-	1485	-	-
Mov Cap-2 Maneuver	339	348	-	309	345	-	-	-	-	-	-	-
Stage 1	835	760	-	505	491	-	-	-	-	-	-	-
Stage 2	498	491	-	750	755	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	10.58		15.06		4.95		0.1	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1125	-	-	750	370	25	-	-
HCM Lane V/C Ratio	0.125	-	-	0.14	0.034	0.002	-	-
HCM Ctrl Dly (s/v)	7.9	0	-	10.6	15.1	7.4	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.5	0.1	0	-	-

5: Tumbleweed Rd & Houser Rd
2035 Total PM - Mitigation

HCM 7th TWSC

Intersection												
Int Delay, s/veh	7.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	48	15	30	131	5	41	69	34	8	63	3
Future Vol, veh/h	14	48	15	30	131	5	41	69	34	8	63	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	56	18	35	154	6	48	81	40	10	79	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	355	318	81	325	300	101	83	0	0	121	0	0
Stage 1	101	101	-	198	198	-	-	-	-	-	-	-
Stage 2	255	218	-	127	103	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	600	598	979	628	612	954	1515	-	-	1466	-	-
Stage 1	906	812	-	804	737	-	-	-	-	-	-	-
Stage 2	750	723	-	877	810	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	426	573	979	536	587	954	1515	-	-	1466	-	-
Mov Cap-2 Maneuver	426	573	-	536	587	-	-	-	-	-	-	-
Stage 1	899	806	-	777	712	-	-	-	-	-	-	-
Stage 2	564	698	-	795	804	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.29	14.24	2.12	0.81
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	481	-	-	584	584	193	-
HCM Lane V/C Ratio	0.032	-	-	0.155	0.335	0.007	-
HCM Ctrl Dly (s/v)	7.5	0	-	12.3	14.2	7.5	0
HCM Lane LOS	A	A	-	B	B	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.5	1.5	0	-

6: Tumbleweed Rd & Driveway A
2035 Total PM - Mitigation

HCM 7th TWSC

Intersection						
Int Delay, s/veh	5.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	217	68	77	189	31	76
Future Vol, veh/h	217	68	77	189	31	76
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	100	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	80	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	255	85	91	222	36	89
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	253	91	0	0	313	0
Stage 1	91	-	-	-	-	-
Stage 2	162	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	736	967	-	-	1247	-
Stage 1	933	-	-	-	-	-
Stage 2	867	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	714	967	-	-	1247	-
Mov Cap-2 Maneuver	714	-	-	-	-	-
Stage 1	933	-	-	-	-	-
Stage 2	841	-	-	-	-	-
Approach	WB	NB	SB			
HCM Ctrl Dly, s/v	11.89	0	2.31			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	714	967	1247	-
HCM Lane V/C Ratio	-	-	0.357	0.088	0.029	-
HCM Ctrl Dly (s/v)	-	-	12.8	9.1	8	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	1.6	0.3	0.1	-

7: Frontier St & Driveway B
2035 Total PM - Mitigation

HCM 7th TWSC

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	34	773	846	79	42	74
Future Vol, veh/h	34	773	846	79	42	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	859	940	88	53	93

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1028	0	0 1445 470
Stage 1	-	-	- 940 -
Stage 2	-	-	- 505 -
Critical Hdwy	4.14	-	- 6.84 6.94
Critical Hdwy Stg 1	-	-	- 5.84 -
Critical Hdwy Stg 2	-	-	- 5.84 -
Follow-up Hdwy	2.22	-	- 3.52 3.32
Pot Cap-1 Maneuver	671	-	- *178 540
Stage 1	-	-	- *340 -
Stage 2	-	-	- *815 -
Platoon blocked, %	-	-	- 0
Mov Cap-1 Maneuver	671	-	- *168 540
Mov Cap-2 Maneuver	-	-	- *168 -
Stage 1	-	-	- *321 -
Stage 2	-	-	- *815 -

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.45	0	21.34
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	671	-	-	-	168	540
HCM Lane V/C Ratio	0.056	-	-	-	0.313	0.171
HCM Ctrl Dly (s/v)	10.7	-	-	-	36	13
HCM Lane LOS	B	-	-	-	E	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1.3	0.6

Notes	
~: Volume exceeds capacity	\$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon

8: Frontier St & Driveway C
2035 Total PM - Mitigation

HCM 7th TWSC

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	146	669	880	9	41	46
Future Vol, veh/h	146	669	880	9	41	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	0
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	162	743	978	10	51	58
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	988	0	-	0	1674	489
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	696	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	695	-	-	-	107	525
Stage 1	-	-	-	-	325	-
Stage 2	-	-	-	-	639	-
Platoon blocked, %		-	-	-	0	
Mov Cap-1 Maneuver	695	-	-	-	82	525
Mov Cap-2 Maneuver	-	-	-	-	192	-
Stage 1	-	-	-	-	249	-
Stage 2	-	-	-	-	639	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	2.1	0		21.04		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	695	-	-	-	192	525
HCM Lane V/C Ratio	0.233	-	-	-	0.267	0.11
HCM Ctrl Dly (s/v)	11.7	-	-	-	30.4	12.7
HCM Lane LOS	B	-	-	-	D	B
HCM 95th %tile Q(veh)	0.9	-	-	-	1	0.4

9: Frontier St & Driveway D
2035 Total PM - Mitigation

HCM 7th TWSC

Intersection						
Int Delay, s/veh	3.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	711	519	4	0	371
Future Vol, veh/h	0	711	519	4	0	371
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	100	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	790	577	4	0	412
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	-	0	-	0	-	288
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	708
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	708
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		16.91		
HCM LOS	C					
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	708		
HCM Lane V/C Ratio	-	-	-	0.582		
HCM Ctrl Dly (s/v)	-	-	-	16.9		
HCM Lane LOS	-	-	-	C		
HCM 95th %tile Q(veh)	-	-	-	3.8		

10: 11 Mile Corner Rd & Driveway E
2035 Total PM - Mitigation

HCM 7th TWSC

Intersection						
Int Delay, s/veh	6.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	222	305	257	297	11
Future Vol, veh/h	23	222	305	257	297	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	85	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	261	339	286	330	12
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1293	330	342	0	-	0
Stage 1	330	-	-	-	-	-
Stage 2	963	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	180	712	1217	-	-	-
Stage 1	728	-	-	-	-	-
Stage 2	370	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	130	712	1217	-	-	-
Mov Cap-2 Maneuver	130	-	-	-	-	-
Stage 1	526	-	-	-	-	-
Stage 2	370	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	15.7	4.94		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1217	-	130	712	-	-
HCM Lane V/C Ratio	0.279	-	0.222	0.367	-	-
HCM Ctrl Dly (s/v)	9.1	-	40.5	13	-	-
HCM Lane LOS	A	-	E	B	-	-
HCM 95th %tile Q(veh)	1.1	-	0.8	1.7	-	-

11: 11 Mile Corner Rd & Driveway F
2035 Total PM - Mitigation

HCM 7th TWSC

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	48	83	197	260	9
Future Vol, veh/h	5	48	83	197	260	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	60	98	232	306	11
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	733	306	316	0	-	0
Stage 1	306	-	-	-	-	-
Stage 2	427	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	388	734	1244	-	-	-
Stage 1	747	-	-	-	-	-
Stage 2	658	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	357	734	1244	-	-	-
Mov Cap-2 Maneuver	357	-	-	-	-	-
Stage 1	688	-	-	-	-	-
Stage 2	658	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	10.8	2.41		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1244	-	357	734	-	-
HCM Lane V/C Ratio	0.079	-	0.017	0.082	-	-
HCM Ctrl Dly (s/v)	8.1	-	15.3	10.3	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.1	0.3	-	-